

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2289.—VOL. XLIX.

London, Saturday, July 5, 1879.

WITH
SUPPLEMENT. { PRICE SIXPENCE
PER ANNUM, BY POST, 21 4s

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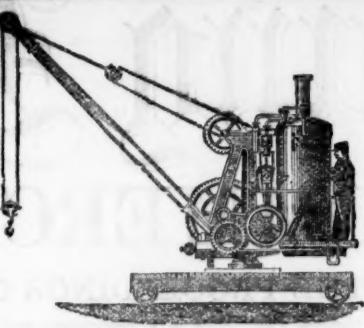
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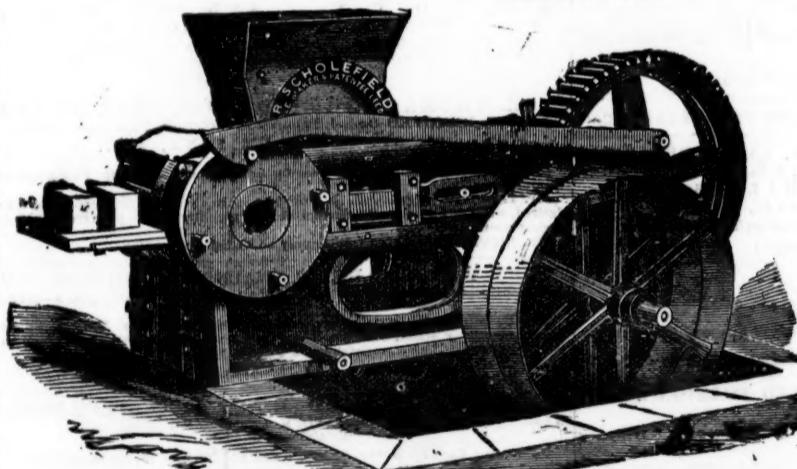
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THE NON-INFLAMMABLE FOR THE MORE DANGEROUS MINES.

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R. SCHOLEFIELD'S LATEST PATENT BRICK-MAKING MACHINE.

PATENTED 1873.



production, and the hands required to make 10,000 pressed bricks per day:—

2 men digging, each 4s. per day	20 8 0
1 man grinding, 4s. 6d. per day	0 4 6
1 boy taking off bricks from machine, and placing them in barrow ready for the kiln, 2s. per day	0 2 0
1 boy greasing, 1s. 6d. per day	0 1 6
1 engine-man, 6s. per day	0 5 0
1 man wheeling bricks from machine to kiln, 4s. per day	0 4 0

Total cost of making 10,000 pressed bricks ... £1 5 0, or 2s. 6d. per 1000.

(SETTING AND BURNING SAME PRICE AS HAND-MADE BRICKS.)

N.B.—Where the material can be used as it comes from the pit, the cost will be reduced in digging.
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CLAUSTHAL MINING SCHOOL NOTES.—NO. CXXII.*
BY J. CLARK JEFFERSON, A.R.S.M., W.H. SC.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal.)
[The Author reserves the right of reproduction.]

SECTION VI.

The publication of these Lectures is unavoidably suspended for two or three weeks. They will then be resumed and continued regularly.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. von Groddeck, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

THE MINERAL RESOURCES OF THE DUTCH EAST INDIES.

No. II.

The valley of the Toboali river is the most important of the district, less from its extent than from the great quantity of tin ore which is found on the bottom and along the sides of this valley and its branches. The first reliable mention of operations in the Toboali valley appear in the mine books of the district for the year 1831. Whilst one finds in the first yearly account after 1830 the position of the mines of this district spoken of, there are no other particulars than the declaration as to the number of workpeople, the annual production, the nature of the mines, the direction and the distance of the working places with regard to the chief town of the district. It appeared that about a score of mines might have been at work. About No. 14 mine (Toeng-fo) the books of 1831 give an account of the number of workpeople and the figure of the production, and from an annual account made up ten years later it appears that the mine was first opened about 1823 in the Toboali valley, and from the statement of the old people was situated by the former chief builder of No. 6 mine (Toeng-fo) before its removal in 1869. In 1836 the No. 7 mine (Toeng-hin) worked in the Inas valley, was united with No. 14 mine, and in former years some very rich ground was obtained there. From 1831 to 1840 the get of tin amounted to 12,640 peculs per miner employed, each miner averaging 170.64 gulden per annum for wages. The average annual output during the ten years to 1850 was but 9,660 gulden per miner employed, and the miners' wages were 130.40 gulden per annum. In the next ten years, from 1851 to 1860, the output averaged 2,930 peculs per miner, and the miners' wages 132.05 gulden per annum; and from 1861 to 1865 the output was only 2,290 peculs per miner, and the wages 80.52 gulden per annum. Thus in 1862, or 38 years after the first opening, there was shown a loss, and in 1865 there was a debt of 263 fl.

In the yearly account for 1847 it was shown that this mine out of two pits yielded the important quantity of 3518 peculs. In 1853 the No. 7 mine (Toeng-fo) was worked, not only in the principal valley but in the tributary valley Bedok also. The ore was there very wide spread, wherefore the valley was worked over its whole breadth, but by that means a satisfactory average produce was obtained. In 1861 attention was turned to the Toeng-fo pit, opened in 1839, and a rich ore deposit was found beneath. The situation of the ore deposit at 7 or 8 metres deep, and here and there the scattered appearance of the ore, but above all things the obstinacy and bad feeling of the miners, were the reasons that in this ground no satisfactory results were obtained, so that the indebtedness of the No. 6 mine had already increased in 1867 to the sum of 36,867 florins, and it was resolved to develop more easily worked and more profitable ground. This new ground was situated in the Toboali valley, above the road from Toboali to Kapo. From 1863 to 1868 at the private mine, Toen-sioe, six pits were opened, and these, with an average number of 60 workpeople, yielded altogether 4196 peculs of tin. A systematic examination with boring tools (boor onderzoek) showed that the valley above the store of the before-mentioned private mine might still be worked with profit for about 600 metres. In this ground No. 6 mine can, with not more than 100 miners, give a very satisfactory produce during eight years, for it was shown by the borings that between the last pit of the private mine, Toen-sioe, in the tributary valley Samak, with a depth of ore bed of 3.50 to 6 metres, the yield amounts to 28 kilogrammes of mineral per cubic metre. The boring trials showed that at an average depth of 6.19 metres the ore was worth 2,609 kilogramme; so that notwithstanding the ground being difficult to work it would still be practicable to get a profit. It is also shown that the portion of the Toboali valley situate above the little tributary valley (Zijvalleitje) Samak is ore bearing. At that place for a length of 700 metres at an average depth of 3.80 metres the average produce of mineral is 1,337 kilogramme. Although the produce of the mineral here is not very large the ore bed lies at a small depth, and in easily worked ground, yet it is not probable that the ground could be wrought at a lower prime cost than 24 fl. per pecul. The still higher part of the Toboali valley is also known to be ore bearing, although no systematic boring trials have been made, yet it is shown with sufficient certainty that under present circumstances the Chinese miners cannot work there.

The lower part of the Samak valley, near its junction with the Toboali valley, is rich, and could under present conditions be profitably worked. Higher up, at a depth of 4.65 metres, the stuff yields 1,679 kilogrammes per cubic metre, so that this ground, with a price of 20 fl. per pecul would yield profits. The upper part of the Samak valley only yields a poor ore, fine as dust, which will probably never be worked to a profit. In the next valley, that has no name, ore is found which could be worked with tin at 21 fl. per pecul. In the Merapin valley the ore requires the price to be 20 fl. per pecul. In the lower part of the little Bedok valley operations were commenced about 1853, but they were subsequently abandoned through want of sufficient ore. The ore deposit was, however, tolerably regular, and might be worked when the price is over 40 fl. per pecul. The Maris valley, an important branch of the Toboali valley, was formerly worked by the mine Sun-joe, numbered 25, after 1831, but at other times bearing different numbers and names. This mine in 1831, with two men working, yielded 53 peculs of tin, but it gave no inducements for working it on a larger scale. Until 1836 this mine still stood in the book as a superficial working, with three men, but it was then worked as a regular valley working, with 48 workpeople. The mean working cost from 1836 to 1840 was 14.60 fl., and thenceforward 44.60 fl., or averaged over the whole valley 32.50 fl. per pecul of tin. The mine which absorbed is referred to as working between 1841 and 1853. It was worked the first year with eight men, the second with six men, and was then got regularly to work. Up to 1851 the tin cost 13.50 fl. per pecul, and afterwards 17.76 fl. per pecul. The portion of the Maris valley lying below the road from Toboali to Kapo was explored with the large boring machine, and a very poor ore deposit was met with. Above the road the produce was in a few places better, and there the ground between sections 7 and 12 could be worked at the price of 20.63 fl. per pecul for tin.

The Kawa is a little branch of the Maris, which was explored, but found to be, on the whole, without ore. Moreover, there is found not far from the mouth of the Toboali river a little valley, or rather a morass, that was worked in former years. It is also said that gold was found in it, but no satisfactory information could be obtained concerning it. With regard to the workings along the sides of the valleys belonging to the river system of the Toboali very little reliable information was obtainable, but the workings along the right bank of the principal valley, both above and below the junction with the Merapin, must have yielded a good produce, so far as can be judged from the extent of the worked out ground. Besides the working along the Maris, which has been already referred to, it is certain that the working along the Samak was also profitable; the workings there were, however, stopped, at the desire of No. 6 mine, in connection with which the work was carried on. Boring has been resorted to along the side of the prin-

cipal valley, Toboali and its branches, and along the Sero and the Pedes valleys ore bearing ground was found nearly everywhere. Along the left bank of the first named, and along the whole of the last named, ground existed which could be worked at a price of 12.50 fl. for tin. The working of both of these places would, however, involve the stoppage of the valley workings of the No. 1 (Le-tjeng) mine, the water from which would be taken away. The side of the lower portion of the principal valley was not found to be workable, and the same was the case with the little valley of Gapok. In the vicinity of the Merapin valley, and above the junction of the Samak with the Toboali ore-bearing ground has been found by sinking shale pits (putjes), which is worthy of consideration. Again, along the side of a little valley which falls into the Toboali valley on the left side, a little above Goentok, many Palembang shale pits were found, which must remain from the early Malay workings.

It appears that in some places profits can be obtained when the average richness of the ground worked does not exceed 2 lb. of tin per ton of stuff. An interesting table, giving the particulars relating to the several districts of the Toboali river system at one view, shows that in sections 1 to 6 in the principal valley, and 1 to 3 in the Samak valley, 208,000 cubic metres of ground of the average produce less than 3 kilogrammes yields tin at 12.04 fl. before reduction, or at 15.05 fl. in metal. In sections 6 to 18, Toboali, 232,000 metres of nearly 23 kilogrammes produce give tin metal at 16.16 fl. per pecul, whilst other workings on the Samak, Merapin, Bedok, Maris, Toboali, and the unnamed valley, yield tin at 25.12 fl., 27.04 fl., 25.54 fl., and in the least favourable case at 30.41 fl. per pecul. The Tagab valley forms a morass district, and no tin ore was met with in the explorations which were made there. In the Bakong valley, which unites with the Tagab, trial workings were made in 1836 at No. 24 mine (Tech-sjin), but according to information obtained no tin ore was met with. The tributary valleys, Rinding and Djankang, alone possess along their sides any important ore deposits. The first of these was profitably worked many years ago at No. 4, later No. 2, mine (Te-gin). The workings of this mine extend for more than 1000 metres long on the Inas valley. By exploration important ore deposits were also found on the left side of the Rinding valley; it was, however, for the greatest part spread over such a large extent of ground that the further working was suspended. This No. 4 mine yielded in 1831, with nine workmen, 700 peculs of tin, or 77 peculs per head, but the table shows that this produce has much fallen off. In the ten years ending 1840 the yield was 27.95 peculs of tin per head, in the next ten years it fell to 22.16 and 21.56 peculs per head, in the next decade to 15.29 peculs per head. Between 1861 and 1865 the average was but 7.77 peculs, and it fell to 2.58 peculs in 1866, to 3.51 peculs in 1867, and to 2.95 peculs per head in 1868. In 1869 the mine was 3172.60 fls. to the bad. The old private mines of Lie-loh, Tjoo-pen-tjeng, and Tjia-kim-sie are found on the sides of the Rinding valley, and from the extent of the workings it appears that formerly much ore was found, but further explorations with the large boring machine did not lay open anything of importance. Tin ore was here and there met with along the Tiroe valley, but in too small quantities to be capable of successful working. Old workings existed along the tributary valleys of Djankang and Kajoe-Batoe, but very little could be learned about them. By exploration tin ores were found along the Djankang, but they were too poor to work. Better produce was obtained by explorations with the large borer along the Kajoe-Batoe valley, and by making arrangements for bringing water from the Pagem-bong operations might be possible.

In the Bantil river district there are many ore-bearing valleys. The No. 7 (Tong-hin) Mine in the Inas appears to have been 551.7 fls. in debt in 1831, but in the five years it yielded 1849 peculs of tin with 26 men, or 14.22 peculs per head per year. In 1837 the workings, which had been stopped, were connected with another mine—No. 24 (Tech-sjin). The first workings appear not to have been successful, for up to 1840 only 509 peculs of tin were obtained, or 3.27 peculs per head per year. In 1862 the indebtedness on this group of mines reached 11,540 fls., but there was then a brighter period, so that by the end of 1868 the debt was reduced to 3148 fls. And the future of this mine is secured for 15 years, for the workable ground in the Simpor valley is very rich. According to the explorations already made, 8000 peculs of tin can be produced at 13.50 fls., and frequently at less. The upper part of the Simpor valley was first worked from No. 26 Mine, and subsequently by No. 10 (Njoen-sjin). In 1831 this mine yielded 319.81 peculs with 22 men, yet at the beginning of the year there was a debt upon the land of 3442.06 fls. In 1840 the number of workmen was raised to 50. From 1841 to 1850 the Mine No. 18 (called 26 above) was not prosperous, but in 1849 the debt of 16,000 fls. was written off. The average production in that period was 6.12 peculs per workman, and the cost price was 18.81 fls. per pecul. In 1850 this same mine was extended, and the working force increased to 69 men. Taking the whole ten years to 1860 the average produce was 6.49 peculs per head per year. The mine continued to work with an average of 72 men, and to give a small yield, until 1869, and the debt at the end of 1862 was 7189.60 fls., although 6275.91 fls. was written off in 1864. The Mine No. 10 has still reserves equal to 18 years, and 9120 peculs of tin can be got. Also the part of the Inas valley lying below the deposit worked in 1835 from No. 10 is ore-bearing, and 3914 peculs of tin at a cost of 18.54 fls. can be obtained. Above the upper part of No. 8 Mine (Soeng-fo) the rich part can easily be worked at a price of 13.50 fls. for tin. By regular working both from the rich and from the less rich ore deposit that part of the Inas valley will still yield 2917 peculs of tin at a cost of 15.31 fls. per pecul. The Remonkhi valley will give 964 peculs of tin at the price of 23.50 fls. per pecul for tin. The next valley—the Irit—has a very irregular ore deposit, but there are three workable places which would yield 1416, 1192, and 2152 peculs, with the price of 21.34 fls., 20.32 fls., and 12.52 fls. respectively for tin.

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The Amau valley and its tributary valleys have never been worked. At 1500 metres northward from the present mine road is a storage dam 50 metres long and several water channels, yet workings were never carried on there. In the Moontai valley low quality ore was found, and a tolerably rich ore deposit was met with in the principal valley, near where the Bollong joins it. According to the explorations the course of ore is there 3 kilometres long, and can with a price of 23.74 fls. for tin return 10,000 peculs. The Boelong valley is not generally rich, but near its junction with the Amau the ore is richer, and 880 peculs could be returned with a price of 34 fl. for tin. The Ingong valley mine No. 9 yielded low produce stuff. From 1861 to 1865 there was obtained from this ground 1047.85 peculs; in 1866 the yield was 727.87 peculs; 321.41 peculs in the following year; and 295.02 peculs in 1868. The Lantijer valley workings were carried on without loss in 1868, but there had previously been written off 36,097 fls. for losses. During 38 years working this mine produced 24,536.63 peculs of tin, at a cost on the average of 13.50 fls. per pecul. The Djuran and Arong-Assem, and another valley a little higher than the latter, are unworkable at ordinary prices for tin. In the Kebon there is a small ore deposit, which would give about 60 peculs with the price at 31.84 fls. The ore body is shallower in the Bantil district than in the Toboali, varying from 3.80 metres to 6.70 metres in the latter, and from 2.59 to 6.19 metres in the former. In the Bantil district metal tin can be produced at from 12.52 fls. per pecul upwards.

The Kawa river district seems to have been but little worked. The lower valley has never been worked. The Malays, who formerly worked at the source of the Tampang, a tributary of the River Gossong, have left a large extent of tailings, but explorations show that ore is so thinly disseminated that work could not be carried on with ordinary prices for tin. The Kada Valley has also never been worked, and explorations did not lead to the discovery of any tin ore. In the Pompong Valley there is scarcely a couple of old pits, and on preliminary examination no ore was found. With boring machinery tin ore was found in one or two places, but not to value. The Nji-bin Mine has produced fair quantities from time to time, the tin production per head per year varying from 8.08 peculs to 26.23 peculs. The Toeng-koenata, or Rabeh Valley, has produced a good deal of tin, but there are no figures beyond 1867. Lingkop Valley has never been worked, and the Njalong, Paja-Reba, and

Benai-Manis have yielded but little tin ore. Various other workings are described in the same way, the conclusions arrived at being that the tin production of the Toboali district, taking the average of the last four years, is lower than the average production of the last 14 years; that the number of miners, although generally pretty constant, has slowly diminished, the average number, taking the last 14 years, being 30 men per year fewer than the last 14 years; that the production of the Government works diminishes, whilst that of the private works increases, the former now producing two-fifths of the average yearly output, and the latter one-third, whilst the private production, taking the average of the 14 years, was but one-tenth; that the payment per miner has diminished, so that this at present scarcely differs from the minimum wages at which day labourers are employed at the mine; and that the chances of the Chinese miners to return to their fatherland with their savings after a few years of hard work have during the last few years much lessened. The result of one and other of these circumstances is that the inclination to become a shareholder in a mine does not increase; that the booty-seeking and excited private operations increase to the prejudice of regular working, and that not unfrequently tin dealing and tin sharpening are carried on in connection with them both within and out of the district. And, just as elsewhere, in Bangka there is also required in the Toboali district a conscientious application of the standing regulations, and, above all, complete control of the whole tin workings.

An interesting memoir is given concerning the further researches with regard to the worth of the brown coal deposit in the Lebak division of the Bantam residency by Messrs. Van Dijk and Huguenin. A small coal seam, or more than one, seems to have existed, but it is so disturbed as to be of no commercial value as far as is at present seen. Mr. Huguenin says that as to the question whether there is a chance of the coal altering and improving in depth, it is one which for the moment is difficult to answer, but he states the various circumstances, and says that it is thus almost sure that the coal will not alter in quality in depth. The stone coal field of Bodjong-Menik, although the seam is in some places found 1.5 metres thick, is of little value, being broken up, and of poor quality. The several descriptions are rendered particularly clear and interesting by the admirable plans, sections, and sketches by which they are accompanied.

ROYAL AGRICULTURAL SOCIETY'S INTERNATIONAL EXHIBITION.

The special features of the Agricultural Society's exhibition this year were that it was metropolitan and international, and but for the lamentable wet weather which has continued almost incessantly for many weeks would no doubt have been the most successful in the history of the society, if one may judge from the excellence of the exhibits and the comparatively large number of visitors present day by day, although the entire 100 acres covered was an almost uninterrupted mass of ankle-deep mud ornamented in many places by railway companies' wagons sunk unmovingly to the wheel hubs with the undelivered machinery upon them, hurdles, planks, and railway sleepers. The canvas sheds are said to be 12 miles long, and as the frontages are double, a considerable distance has to be traversed to get anything approaching an idea of the extent and completeness of the show. The whole of these frontages have an outlook upon one material only—well pugged clay, too wet for brickmaking even by hand—and to enable the exhibits to be visited at all, every kind of expedient has been resorted to. To enable the machinery to be got anywhere near the places allotted to it corduroy roads, formed of old railway sleepers, have been laid in the three main arteries, but even the railway sleepers have to be shifted to prevent their disappearance beneath the mud. From the corduroy roads the exhibitors' frontages are reached by battens and deals laid bridgewise, and the frontages themselves where passable at all have been made so by the free use of burnt-brick earth, hurdles, sawdust, chaff of various kinds, and various other materials, the most successful effort being that at the international dairy, where they have laid a solid flagging of York stone. There are about 30 acres of canvas and nearly four acres of felt roofing employed, and there are also the conservatories and buildings exhibited to show patent roofing, but the ground was scarcely less puddled under the covers than outside.

In the Machinery Department the exhibits of greatest interest to the readers of the *Mining Journal* were, no doubt, the stone-breakers, the air-compressors, and the rock-drills, of each of which several were shown. The Duplex stone or ore breaker shown by Mr. George Gimson, of Stalybridge, is probably entitled to the most prominent notice, inasmuch as it is warranted to break 75 per cent. more material than the single machine, and takes no more power to work it. The reason of this is most difficult to understand. The power is used continuously instead of intermittently. The idea of putting two Blake's stone-breakers back to back, and working them so as to make two bites at each revolution, is not new, having been successfully tried 10 or 12 years ago: but then the jaws were moved direct by the eccentric or cam, the backs of the jaws being moved near enough to be acted upon by the cam alternately. Mr. Gimson has a different notion: he retains what would be the pitman in Blake's machine, but puts a pin or axle through the bottom of it, on which the eccentric causes the pitman to rock, communicating motion through the toggles to the jaws alternately. It is stated that the machine being double-acting two different sizes of stone can be broken at the same time, thus obviating the re-setting of the jaws, as in other machines. This is, no doubt, true, but it would probably be found more economical in practice to use both sides on similar stone and doing similar work, notwithstanding the apparent disadvantage of having to re-set the jaws.

The excellent stone-breakers manufactured by Mr. R. Broadbent and Sons, of Stalybridge, have several times been noticed. The special feature is the positive drawback motion which is said to be the result of great experience, 336 Blake machines, ore crushers, and combined stone-breakers and engines having been made by Robert Broadbent and Sons for the late H. R. Marsden, and after his death in 1876 a patent was taken out by them for the improvement. In the ordinary Blake stone breaker the movable jaw, when forced forward, has to compress a strong spiral spring embedded in India-rubber; this not only requires very considerable power, but acts as a brake to the machine. The patent drawback motion obviates this defect. No spring is used, therefore no unnecessary strain is put on the machine; the whole power of the engine is available in breaking material, for the jaw is pulled back by an arrangement of simple levers which cannot get out of order, which requires no power to work it, and which only needs adjusting for different lengths of toggles. The stone-breaker made by Robert Broadbent and Son is thoroughly well finished, and nothing but the best materials are used. When road metal is required it is fitted with cogging jaws which are firmly bolted to the machine, and can be renewed or reversed in ten minutes. The eccentric shafts are made of steel, therefore are much stronger; and since the patented improvement has been applied not one eccentric shaft has been either broken or strained. The movable jaw is fitted with a loose face, the jaw shaft turned, and the jaw stock bored, thus ensuring a perfect fit; the jaws or faces are made of the best and hardest chilled iron, the machine is strengthened in every part where the old machine was weak, and Robert Broadbent and Son guarantee that any stone-breaker supplied by them will give perfect satisfaction. All sizes of machines, either fixed for mines and works, or mounted on wheels for roads, can be supplied in 14 days. A stone-breaker can always be seen in operation at the Phoenix Works, and samples of any kind of material will be broken for those who desire it.

Amongst the machinery in motion the patent Ingersoll rock-drill, exhibited by Messrs. Le Gros, Mayne, Leaver, and Co., of Queen-Victoria-street, appeared to be attracting most attention in the class, being shown in operation upon a good tough piece of stone, and working admirably. The largest size drill of this make has been at work for about 20 months at the Jersey Harbour Works, and has given great satisfaction; it has been boring holes 20 ft. deep and 5 in. diameter, and did not require 24 worth of repairs in the year: it is now in daily use, and works as well as ever. It is claimed that the Ingersoll rock-drill may be worked either by steam or compressed air with equal advantage, and only requires a pressure of from 20 to 40 lbs. per square

fication of the Ingersoll, but many considerable alterations have been made, which are claimed to give far better results. Both inventions are in the same American hands, although in this country there are different agents. It is remarked that the Eclipse has been perfected not only at a great outlay, but with the advantage of actual daily practice, without which it is impossible to construct a perfect machine. The result is that the movements upon which superiority is claimed are perfect, the action of the valve, not being controlled by any mechanical appliance, is so gentle, yet strong, and all cause of destruction to these parts from jar or otherwise thoroughly obviated. The small drill is very compact and portable, weighing about 90 lbs. It will bore holes to any angle, and from $\frac{1}{4}$ in. to $\frac{1}{2}$ in. in diameter, at the rate of from 2 to 12 inches per minute, according to the various classes of stone, with a pressure of 20 to 30 lbs. per square inch. In the larger size machines all pieces are made a limited weight, in order to ensure their transport to all parts. Its feed being strictly automatic, whatever be the nature of the rock, the piston never acts upon the feed arrangement except at the precise moment when the progress of penetration warrants the advance of the drill. Let the rock be hard or soft, or full of seams, whether the pressure be low or high, or whether the drill be fixed to any peculiar angle, and boring at the rate of 2 in. or 12 in. per minute, it does not affect the regularity and effective duty of the feed, and the perfect mechanical result of advancing the machine forward at precisely the rate of its progress into the rock. In connection with the Eclipse drill, the Reliance Air Compressor has in practice more than realised the expectations of its inventors. The extreme simplicity, the perfection with which it accomplishes its work, its strength, compactness, and durability, combined with effective power, renders it a machine capable of application to any work where motive power is required. It consists of two steam and one air cylinders, worked by a central crank, with two crank pins, forming throws for side valves. The inlet valves are arranged at each end of the cylinder, and are actuated by the momentum of the piston. The delivery valves are arranged on the top of the cylinder at each end, and the air is conducted through a slot into the receiver. The special advantages claimed for the Reliance compressor are—absolute certainty in the action of the valves at any speed; perfect delivery of the air at any speed or pressure; the heating of the air entirely prevented at any pressure; power applied to the very best advantage; access obtainable to all valves without the breaking of cylinder covers; entire absence of springs or friction to open or shut the valves; uniformity of pressure maintained; absolute economy in first cost and after working; and that no foundations are required.

Specimens of Sturgeon's high speed air compressors are exhibited by Messrs. Clayton, Howlett, and Venables, Atlas Works, Harrow road. They are made both with and without the steam-engines attached, and are claimed to be the most effective and economical air compressors extant. The steam and air cylinders are mounted upon a strong iron bed, which is made hollow, and serves the purpose of a receiver. Each machine is fitted with steel crank shaft and crank pins placed at right angles, balanced fly-wheels, patent stuffing-box valve, and water-cased cylinder, lubricators, &c., complete. As the receiver forms the bed or main frame of the whole machine it adds to its stability and compactness, rendering costly foundations unnecessary; the whole driving engine, compressor, and receiver being entirely self-contained and extremely compact may be readily transposed from place to place as required. The distinctive advantages claimed as compared with all preceding air compressors are:—Increased speed and reduced size; absolute certainty in the action of the valves; perfect delivery of the air at any speed or pressure; a separate receiver dispensed with; the power applied to the best advantage; reduction in weight and saving in cost of transport; the heating by compression utilised; over heating prevented; valves easily accessible for repairs, &c.; uniformity of pressure; small working space required; and absolute economy in first cost and after working. Messrs. Clayton have also designed a smaller and very convenient arrangement for limited mining operations, for driving rock drills, coal cutters, &c. They are constructed with the object of being driven by a portable or other engine, or from a line of shafting, or by pulley or gearing from a water-wheel. The beds furnished with these compressors are provided with a hollow portion serving as a small receiver. In cases where the air driven engine works intermittently, consuming at each working a large quantity of air, an extra receiver is recommended. By such an arrangement Sturgeon's high speed air-compressors are rendered especially available for ironworks and factories employing steam-hammers, riveting machines, and small engines far from the main motive-power, which can be worked with greater benefit and economy by compressed air than by steam; and it is important to note that the speed can be increased in proportion to the quantity of air required, an advantage possessed alone by these compressors. The compressors are fitted with the patent stuffing-box valves and water-cased cylinders, pulley, and all usual fittings.

An excellent fan—Rammell's patent—for ventilating was exhibited in the machinery in motion department by Messrs. Thornehill and Warham, of Burton-on-Trent, and Great George-street. It has the great recommendation of being very compact and self-contained. The brickwork and masonry required is almost limited to the amount necessary to make a flat bed to receive it, whilst the mode of utilising the iron plate, which forms the equivalent of the bed plate and standard, to protect the engines ensures the maximum of strength and rigidity, with the smallest possible expenditure of material.

Many other interesting exhibits will be noticed in a future Journal.

FOREIGN MINING AND METALLURGY.

The amount of business passing upon the Brussels metallurgical bourse has continued limited. Enquiries are certainly made, but little business is done. It appears from the evidence which has been collected in connection with an enquiry into the condition of metallurgical industry in the German Empire that Belgian girders compete with difficulty upon the Baltic coast with German girders, notwithstanding the low price at which they are offered, and that the Germans are now only purchasing No. 3 Belgian iron, corresponding to the ordinary descriptions of iron rolled by them. It appears from a report prepared by M. Berchem, principle engineer of mines in the province of Namur, that 18 mines of ironstone were inactive in the province in 1878, as in 1877. M. Alfred Brasseur is endeavouring to direct the attention of Belgian industrials to Mexico as a field for their products.

There is nothing very striking to report in connection with the Belgian coal trade; dullness is still the order of the day. M. Berchem, principal engineer of mines in the province of Namur, has just presented a report on the state of coal mining industry in that province in 1878. The number of mines in activity in 1878 was 18, as compared with 21 in 1877. The number of centres of working in 1878 was 22, against 23 in 1877; and the production of 1878 was 414,000 tons, of the value of 125,200L. The production was 12 per cent. in excess of the corresponding production in 1877, but the value was between 7 and 8 per cent. less. The average sale in 1873 was 13s. 9d. per ton; in 1878 it declined to 6s. 2d. per ton, showing a reduction of 55 per cent. in five years. The number of workmen employed in the province in 1878 was 2957, or 296 less than in 1877, although the production of 1878 was somewhat in excess of that of 1877. The average wages paid were about the same in both years. The cost price of the coal raised in the province last year was reduced to 7s. per ton; but notwithstanding this coal was worked, upon the whole, at a loss last year. It is noticed that the French demand for coal in the province of Namur is failing off.

In the French department of the Haute-Marne the foundries are not without orders. In the Nord the situation is nearly the same as it was a month since. Orders for merchants' iron are still numerous. In the Meurthe-et-Moselle the pig for refining has been dealt in at 2L. 3s. 3d. to 2L. 5s. per ton, according to the periods allowed for delivery. No. 3 casting pig is worth 2L. 14s. 6d. per ton, and the demand has been of some little importance. In the Ardennes the state of affairs is not bad, upon the whole; the forges have work assured to them for the moment, and even for some time to come. Quotations for iron have ranged from 6L. 12s. to 6L. 16s. per ton. In the Loire-et-Rhone the iron trade continues to exhibit a favourable tendency, and the activity prevailing is considered to be sufficient to enable producers to establish an advance.

A short line from Rome to Tevoli has just been opened for traffic. Some of the inclines are very severe—1 in 16. The engines weigh 24 tons, and they draw four carriages containing 130 passengers. The carriages were made at Milan. The locomotives were supplied by MM. Cards Frères, of Gond, and the rails which are of iron, and which weigh 50 lbs. per yard, were rolled by MM. Pierard Frères, of Montigny-sur-Sambre. The last-named firm has also supplied five-eighths of a mile of iron sleepers on the Serres and Battig System, for a line from Milan to Saronno. Belgian firms would thus appear to have gained a good footing in Italy.

The Sutro Tunnel under the Comstock mines, Virginia City, Nevada, having its drainage arrangements completed, has begun to receive water from all the mines, draining them from a level of 1600 ft. below the surface. This is an important event in silver mining, giving those mines facilities for working far below their present depth.

The proprietor of the Compostela Coal Mines in Cebu has offred to supply the Spanish navy on the Philippine station with coals at the rate of \$5 per ton. The Diario, in pointing out the advantages of this offer, states that Cardiff coal costs \$11 to \$13 per ton. Should

the Government construct a tramway from the mines to the port of shipment the price of the Compostela coals would be reduced to \$4 per ton.

Meetings of Public Companies.

COLONIAL BANK.

The 83rd half-yearly general meeting of proprietors was held at the Bank House, Bishopsgate street, on Thursday,

Mr. T. D. HILL in the chair.

Mr. JAMES CLARK (the secretary) read the notice convening the meeting, and the subjoined report of the directors was submitted:—

The directors now submit to the proprietors the usual statement of debts and of the corporation on Dec. 31 last, including the net profit of the half-year ending at that period.

DEBTS.

Circulation.....	£ 412,374 4 2
Deposits, bills payable, and other liabilities.....	3,000,611 14 7
Paid-up capital.....	600,000 0 0
Reserved fund.....	90,000 0 0
Balance of profit from last half-year.....	2,891 9 9
Net profit for the half-year.....	38,503 19 11

Total..... £ 414,731 8 5

ASSETS.

Specie.....	£ 330,510 9 5
To the bank in the colonies, on bills discounted and purchased (including those past due), &c., &c.....	1,514,512 18 8
To the bank in the colonies on current accounts.....	20,324 15 11
To the bank in London on bills remitted, cash at bankers, &c.....	2,270,818 7 0
Bank premises and furniture in London and in the colonies.....	8,624 17 5

Total..... £ 414,731 8 5

The general stagnation in business, and especially the great depression in our sugar market, have to some extent influenced the bank's operations, and the directors are unable to declare a larger amount of profit than is shown in the above statement. A Select Committee of the House of Commons is now sitting on the sugar industries, and should its report result in placing the trade on a free and equitable footing, it will relieve your directors of much anxiety. Under these circumstances the directors, having provided for all bad and doubtful debts, and for income tax, recommend that out of the net profit amounting to £ 238,503 19 11

Added to the amount brought forward of £ 2,891 9 9

To the ordinary dividend of 6 per cent be made on the paid-up capital for the half-year ending Dec. 31 last, which will require £ 36,000 0 0

Leaving £ 5,895 9 8

Of which it is proposed to carry £ 3,000 0 0

To reserve fund, and the balance of £ 2,695 9 8

Forward to the next half-year.

The CHAIRMAN said that in moving the adoption of the report he wished it was in his power to say anything to make matters appear brighter than they were, but, unfortunately, the depression was as great in the West Indies as it possibly could be; indeed, it was so difficult to employ capital there without unreasonable risk that they had found it absolutely necessary to keep much in this country, although it had earned but a small amount of interest, and he was sorry to say they had, therefore, been compelled to reduce the amount of interest allowed to their customers in the West Indies. The excessive amount of bounty sugar raised on the Continent had had a most prejudicial effect upon prices, and had undoubtedly caused serious loss to the planters in the West Indies. He felt the time had now come when, unless a check were put upon the bounty system, the sugar growing interest of the West Indies would be extinguished. Both protection and the bounty system were opposed to free trade, but the evils of protection were comparatively limited, whilst the evil of bounties extended to all other producers within range, and injury must recoil on those who receive as well as those who pay the bounty. He cordially hoped that the Select Committee which had now been appointed would have a beneficial result, and that in January next they would meet under more favourable auspices. He concluded by formally moving the reception and adoption of the report.—Mr. HENRIQUES seconded the motion.

A PROPRIETOR asked whether they had been prosperous since January, as he thought it very desirable that they should know whether they were at the present time in a better or worse position than at the date to which the accounts were made up.

The CHAIRMAN said that they were certainly not in a worse position now than in January; it was only the future with regard to which they had apprehension.

The motion for the adoption of the report was then put to the meeting and unanimously agreed to.

The dividend of 6 per cent. for the half-year was then formally proposed and unanimously sanctioned, and thanks having been voted on the proposition of Mr. Bravo, to the Chairman, directors, and officers of the Corporation, and duly acknowledged, the proceedings terminated.

WHEAL CREBOR MINING COMPANY.

The general meeting of shareholders was held at the offices of the company, Gracechurch-street, on Thursday.

Mr. J. Y. WATSON in the chair.

Mr. C. B. PARRY (secretary) read the notice calling the meeting.

The CHAIRMAN said the financial position of the company was as follows:—The loss for the four months had been 472L. 14s. 9d.; there was cash in hand 104L. 3s. 10d.; and the liabilities over assets were 473L. 15s. 6d. With respect to the mine, Capt. Andrews, who was present, and would answer any questions, was returning 20 tons of copper per week, which was paying the cost, and in six weeks he would be able to double that 20 tons, and make 300L. per month profit. Therefore, if the finances were now put in thoroughly good order he hoped this was the last call they would have to make.

Mr. PARRY then read the accounts, which were passed.

The CHAIRMAN said the committee considered that a call of 2s. per share, which would amount to about 600L., would be sufficient to meet all the requirements, and to put the mine in good condition.

On the motion of Mr. GUTIERREZ, seconded by Mr. CLIFF, a call of 2s. per share was then made.

The CHAIRMAN said the shareholders would be pleased to hear a capital report from Captain Andrews.

Mr. PARRY read the report of Captain Andrews, which was as follows:—

July 2.—I beg to hand you my report for the meeting appointed to be held tomorrow. Since your last general meeting, held March 7 last, operations have been chiefly confined to the driving of the 120 and the 108 fm. levels east, rising in the back of the 48 towards new shaft, also sinking the new shaft below the surface, besides which one stop has been working in the back of the 120. Since the last meeting the 120 east has been driven 12 fms. 1 ft. about 8 fms. of which was in unproductive ground, but in the last 4 fms. driving the lode has very much improved, and has varied in value from 10L. to 35L. per fathom, but a few feet behind the present end we met with one of those oblique branches which I often cross the lode, and which almost invariably disorders it for a short distance, but I am glad to say it is again improving, and is now 4 ft. wide, and worth 20L. per fathom. The 120 east has been driven 7 fms. 2 ft. on a lode varying from 3 to 7 ft. in width, and worth from 10L. to 25L. in value; in the present end the lode is 6 ft. wide, and worth 20L. per fathom. A winze has been sunk below the 120, which is now down 8 fathoms below the level; this winze is now 9 fms. 2 ft. behind the 108 end, and when commenced to sink below the level was about 10L. per fathom, but has since gradually improved, and was worth a week ago 50L. per fathom—at the present time the lode is 6 ft. wide, and worth 45L. per fathom. In stopping the back of the 120 we met with a branch running obliquely through the lode, and in following its course we intersected another lode running parallel with the lode the stop has been worked on; this is 10 ft. to 12 ft. south of the lode worked on in the stop in back of the 120, and is apparently going down south of the lode we have been working on, and is going east and west, and appears to be altogether a separate lode from that we have been working on. In driving east it is 24 ft. wide, and worth 15L. per fathom. The 48 east has been driven about 8 ft., since which I have taken the men and put them to rise in the back of the 48 towards the new shaft with the view of effecting a communication as soon as possible, after rising 8 fms. 2 ft., and sinking the shaft 8 fms. 4 ft., and which according to the dialling had spent the ground between the two points, and 5 or 9 ft. over, we have not communicated the two points; therefore, I am afraid there is an error in the dialling, and if a communication is not effected in a few days I think it better to get the ground re-dialled. In conclusion, I beg to say the mine is opening out very encouraging, and we are at the present time raising over 20 tons of ore per week from the ends and winzes (and not a single stop working), which at the present low price of copper will leave a profit on the working cost of the mine, but after the winze is holed to the 120, which I hope will be done in about six weeks from this time, we shall in my opinion have no difficulty in doubling our returns, which will leave a profit at the present low standard of something like 300L. per month.—JOHN ANDREWS.

Captain Andrews, in reply to a question, said they were raising 20 tons of ore per week from the ends and winzes alone, and not a single stop working. Everything was opening up very encouragingly, and he believed that in about six weeks they would be able to make a profit of 300L. per month.

Mr. POWELL asked the length of the winze sinking under the 108?—Captain Andrews said they were carrying it about 8 feet long, but he only valued it for

6 feet long.

Mr. POWELL: You are sure the discovery is a new lode, and not a branch?

Capt. ANDREWS said that as far as could be seen there was no doubt of its being a new lode; it was running parallel to the lode they were taking away, and 8 or 6 feet from it.

Mr. G. BATTERS asked what profit per share per quarter a profit of 300L. per month would give?—Mr. GUTIERREZ said it would give a profit of 12s. per share per annum.

Mr. G. BATTERS asked how it was that so small a quantity of ore would leave so large a profit? Was the mine worked cheaply?—Capt. ANDREWS said it was the cheapest mine to work in the two counties, and if the mine opened up as at present it was not unreasonable to suppose the returns would very largely increase.

The CHAIRMAN, in reply to a question, said it would take about twelve months to get the shaft down to the 120, but the captain stated they would be able to return a profit of 300L. a month before they got to the 120.

Mr. BATTERS asked whether the new discovery looked like a permanent one?

The CHAIRMAN said that formerly the old Wheal Crebor yielded 150,000L. worth of copper, and the Crowndale returned the same amount, and the company possessed the ground between those two courses of ore, and there was every reason for believing in the permanence of the mine.

Capt. ANDREWS also said that, looking at the stratification in which the ore was embedded, the lode looked like turning out a thoroughly good and permanent one.

Capt. ANDREWS, in answer to Mr. Wilson

the consumption of metals. It is, therefore, reasonable to expect that a new cycle of prosperity will bring metals into larger demand. This is now the case in America, particularly with lead, and if it should presently be shown that the United States can consume all the lead they produce, and that they have no margin for exportation we shall quickly see a revival in prices here, and a reappearance in our markets of many buyers that have lately been supplying their wants in San Francisco. The future is undoubtedly very hopeful, and investors in mining shares would probably do wisely in absorbing some of the stocks which are just now so depressed.—Money.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the markets have been quiet, business being influenced by the unfavourable state of the weather. The payment, however, of the various dividends due this month should, seeing the low rates allowed for money in the banks, increase the demand for investments, especially as prices of many sound securities are very low. Though the metal markets are at present very low we shall soon see them better. The revival in trade is still very slow to set in, and there have been rumours of impending failures, but it is generally conceded that a firmer basis for the recovery has now been reached.

In shares of coal and iron concerns, Ebbw Vale have advanced 15s. per share on the week; Arclidon, 9s.; and Marcella, 2s.; while Bolckow, Vaughan, A, are 1s. 10s. lower; Bonhill, 4s. 6d.; and Monkland, 3s. 6d. Bonhill fell to 1s., no reason being assigned for the fall, but are rising again. The Scottish Australian sales for April have been 20,091 tons. Andrew Knowles and Sons have made a call of 2s. per share; as there are 25,000 shares in the company the capital thus raised should be 50,000. At the Ebbw Vale meeting it was decided after a long discussion to issue 5 per cent. debentures to shareholders *pro rata*, and should any call be made in future these debentures can be handed back to the company in payment. Bolckow, Vaughan, and Company have also made a call of 5s. per share, payable next month, on the A shares; as there are 19,000 of these shares the capital raised will be 95,000. This money is required to complete the purchase of the South Banks Ironworks, which were lately purchased for 120,000. The directors state that the process for making steel from Cleveland pig-iron is an entirely assured success. Ashton Vale are at 9s.; Bilbao, 17s.; Carnforth, 8s.; Chillington, 3s.; Consett, 16s.; Ebbw Vale, 3s. to 4s.; Great Western, B, 3s.; John Brown and Company, 3s. 35s. 6d.; Lydney and Wigpool, 5s.; Marcella, 2s.; Muntz's Metal, 2s.; New Sharlston (pref.), 6s.; Newport Abercarn, 9s. 6d.; Nerbudda, 6s.; Rhymney, 10s.; South Wales, 5s.; Thorp's Warbeck Hall, 10s. to 20s.; Ulverston, 9s.; West Cumberland, 5s.; Workington Malleable, 12s.

In shares of foreign copper and lead companies, Canadian are 3s. higher per share, but Tharsis (new) are 5s. lower. Cape and Rio Tinto are now dealt in ex div. The West Prussian Mining Company have declared the usual quarterly dividend at 8 per cent. on the preference shares only, so that the A shares get nothing instead of 4 per cent. as at this time last year. Advices are to hand from the Yorke Peninsula Mine, dated May 12, and being very encouraging have caused a better demand for the shares. The ore returns are—on hand at the mine 355 tons of 14s. per cent., 500 tons of smals of 5 per cent., and 1240 tons dredge ore of 5 per cent.; there had been sold in the colony 100 tons of 17 per cent. taken from the cells to 22s., but have since recovered. English and Australian are at 25s. Fortuna, 7s.; Linares, 7s.; New Queradas, 4s.; Rio Tinto, 5 per cent., 70s.; Yorke Peninsula, 3s. 9d.; and ditto (preference), 7s. 6d. to 12s. 6d.

There has not been much doing in home mining shares. Several of the tin mines in Cornwall are looking very well, and a favourable tendency in that metal would no doubt cause an important rise just now. The Van Lead Mine has declared a dividend of 8s. per share, payable the 10th inst., being the same as at this time last year. Bedford United are at 3s.; Caron, 15s. 6d.; Carn Brea, 2s.; Cook's Kitchen, 3s.; Devon Consols, 4s.; Dolcoath, 2s.; East Caradon, 7s. 6d.; East Lovell, 2s.; East Pool, 9s.; East Van, 3s.; Glenroy, 10s.; Great Laxey, 15s. to 18s.; Gunnislake (Clitters), 12s. 6d. to 17s. 6d.; Gwattow, 7s. 6d.; Herodsfoot, 5s.; Hindston, 7s. 6d.; Ladyswell, 12s. 6d.; Mellanear, 7s.; Leadhills, 4s.; Marke Valley, 10s.; North Laxey, 2s. 6d.; Penstruth, 2s. 6d. to 3s. 6d.; Phoenix, 4s.; South Caradon, 50s.; South Frances, 8s.; South Condurrow, 11s.; Tawker, 4s.; Tincor, 8s.; Van, 17s.; West Chiverton, 50s.; West Seton, 12s.; West Vale, 10s.; West Tolvus, 21s.; West Frances, 5s.; West Bassett, 7s.; Wheal Crebor, 5s.; Wheal Pever, 9s.; Wheal Grenville, 8s.; Wheal Kitty, 5s.; Wheal Jane, 22s. 6d.; Wheal Uny, 10s.

No important movement has occurred in shares of gold and silver mines. Richmonds have again been singularly steady, and the week's run is 5,000. In April Port Phillip had a profit of 95s. Frontino and Bolivia a profit of 810s., in June Port Phillip has a profit of 94s. The produce at St. John del Rey for second division of June, 10,250 ots., being an average yield of 6 ots. per ton. A new company—the Nava de Jardaz—has been formed with a capital of 40,000s., in 12 shares, to acquire and work several hundred thousand square yards of gold and silver mining property in Spain. Almada and Tirito, 6s. to 7s. 6d.; Argentine, 3s. 6d.; Australasian, 5s.; Cedar Creek, 2s. 6d.; Chontales, 7s. 6d.; Colorado, 32s. 6d.; Don Pedro, 17s. to 19s.; Eberhardt, 5s. 6d.; Exchequer, 2s. 6d. to 5s.; Frontino, 42s. 6d.; Javall, 6s. to 8s.; Last Chance, 5s.; London and California, 10s. to 15s.; New Zealand Kapanga, 7s. 6d.; Pestauna, 3s. 9d. to 5s.; ditto, 12s. per cent. (preference) 15s. to 20s.; Sierra Buttes, 42s. 6d.; Tecom, 2s. to 4s.; Tolima, 5s.; United Mexican, 7s. 6d.; Oil companies shares have been flat owing to the immense quantities of oil that are reported to be on shipment to this country, but now show a tendency to recover. Upfalls are 2s. 6d. higher. Young's Paraffin have been selling at 13s. and 13s. Shares of miscellaneous companies are generally steady. Brown, Davis, and Company are at 3s. 6d.; Drotchell Salt, 2s.; Phospho-Guano, 5s.; and United Liniment, 2s.; Wagon companies shares show little alteration, Scottish being offered at last week's price (9s.). Prices of others are—Birmingham, 8s.; Bristol, 8s.; Bristol and South Wales, 5s.; Midland, 8s.; Railway Carriage, 7s.; Swansea, 27s. 6d.; Metropolitan, 32s. 6d.; Midland, 8s.; and Western, 5s. In shares of chemical companies, Lawe's (ordinary) are easier at 8s. 6d., but the preference shares continue scarce. Langdale's 7s. to 7s. 6d., and Newcaste's, 10s. to 12s. 6d.

NEW APPLICATION OF BESSEMER'S RAPID PROCESS OF OXIDATION, BY WHICH SULPHIDES ARE UTILISED FOR FUEL.—A series of papers have been issued by the patentee of this process giving full particulars of what has been accomplished by it, and will be found of great interest. The discovery is broadly described as one for economically treating certain abundant mineral substances with the view of obtaining from them valuable products. The importance of this subject may be estimated from the fact that 1½ to 2 million tons of pyrites are raised annually by the Rio Tinto Company, the Tharsis Company, and Messrs. Mason and Barry. Upwards of 600,000 tons of this quantity are imported annually to this country, and employed in the manufacture of sulphuric acid. About a million tons are annually burned at the mines. It may also be interesting to mention that in South America, Cuba, Australia, Cape of Good Hope, and in many other places, there are large quantities of poor copper ore, containing 5 per cent. and upwards of copper, which are thrown aside as unsuitable for smelting on account of the cost of fuel, and from which the copper is only partially extracted by the cementation process.

The cementation process employed in Spain yields about 55 per cent. of the copper from pyrites at a cost of about 13s. 6d. per ton on the pyrites treated—about 55 per cent. by lixiviation in the tanks, and further 20 per cent. from the resulting residue, the remaining 15 per cent. of the copper being practically lost, while the sulphur passes into the air as sulphuric acid, causing great damage to property, besides the entire loss of the sulphur. One 100 tons of pyrites containing 15 per cent. copper thus treated the produce would be 1,275 tons of copper; valued at 60s. per ton a profit of 9s. is, therefore, obtained over cost of extraction, or less than 1s. 9d. per ton. This process is only employed for treating the poorer ore raised from the pyrites mines, and is carried on in their vicinity. It is divided into three principal operations—calcination, lixiviation, and precipitation, and was first introduced at the Rio Tinto by Alvaro Alonso de Garcia in 1861. On the whole, it is very suitable for the treatment of the poorer pyrites ore for copper. Its advantages are that it does not require much skill on the part of the labourer, nor does it involve the use of any very costly materials or complicated appliances. But the process has many disadvantages, especially where large quantities are to be dealt with—1. It seldom happens that an ample supply of water can be obtained all the year.—2. When the rain falls it usually comes in large quantities. During these periods the drainage from the calcination ground, waste heaps, and mineral stock heaps is highly impregnated with copper, and is so great that it cannot be overtaken in the precipitating tanks, so that much copper is lost.—3. The fumes from the calcination of such large quantities of pyrites impregnate the air for miles around, and completely destroy all vegetation.—4. The copper in the ore only is available, the iron sulphur, gold, silver, &c., which form a part of the mineral being practically lost.—5. The process is only suitable for the poorer ores.—6. The authorities are averse to the extension of the process.—7. The works are scattered over a large area, and the whole operation embraces many separate operations from the time the crude ore enters the calcination ground to the exit of the finished product.

During the whole of this time (about twelve months) it is subject to many influences which sensibly tell as a loss on the narrow margin there is for working upon. Rain, leakage, imperfect calcination, lixiviation, and precipitation considerably affect the working costs, and a slight neglect to either of those details may make all the difference between a profit and a loss on the operation. By the new discovery, however, the pyrites companies will naturally avoid the destruction of vegetation and at the same time greatly increase their profits. The new process could be advantageously employed by the copper smelters for treating rich copper ores, on account of its great economy. For full particulars of the various experiments we must refer to the papers themselves and accompanying illustrations. It is estimated that the cost of laying down plant to treat 300,000 tons of pyrites yearly by this discovery would be 137,030. The cost of this supply of pyrites containing only 1½ per cent. of copper, with coals, wages, and all other known or contingent expenses, would be 301,000s., while the value of the principal products would be 466,000s., thus showing a profit of 165,000s., or 1s. per ton, as against less than 1s. 9d. per ton from the old process. From these remarks the great advantages offered by the invention will be apparent, and it is without doubt they will prove sufficient inducement to have it practically entered upon.

CHINA-CLAY COMPANY.—A small limited company is being formed to purchase and work some works of this kind which are expected to come to a forced sale, owing to the disputes of the proprietors. The works are in active operation, and they will pay a good profit even in the present depression, and with fairly good trade they would pay a very high rate of interest. The works are on an extensive scale, and have cost about 10,000s., but the chances are that they would go for a merely nominal price at such a time as the present. Being fully developed and well established there is no risk in this investment. The capital of the new company will be 3000s., in 10s. shares.

REIDOL VALLEY SILVER-LEAD MINING COMPANY (Limited).—We are now enabled to put a clearer explanation of this company's

prospects and position before investors than we have already done. The old company in a short time spent 10,000s., independent of ore sales, in working on a south lode that never has or will produce ore in paying quantities. But the new company can save themselves of this expenditure, the mine having been sunk 30 fms. under the deep adit level, and brought up to the old ore ground, but not into it. In the 20 fm. level a cross-cut was put out from the south to the north lode, and a rise put up and communicated with the ore ground about 15 fms. west of the workings under the deep adit, where work has been done on tribute at handsome profits. This may be considered the most westerly paying portion of the sett. To the east of this there is a continuous course of ore worked from surface downwards more than 60 fms. This is the part acquired by the present company, and the first thing they have to do is to clear through the old workings on the deep adit level, then to hole the rise over the deep adit 2 fms. through to the midway way. This being done they could let bargains from 4s. to 5s. per ton for dressed ore which contains 13 ozs. of silver per ton. They will also obtain at the same time direct communication from surface through the ore ground to the deep adit level. It will take six months to accomplish success when the necessary machinery will be erected, which will be worked by the river. The former company's machinery was miserably placed, but considerable saving can be effected by utilising portions of it. There are excellent buildings, &c., on the mine, with a good road to Aberystwith. The royalty has been fixed at 1s. 15d. The capital is 10,000s., in 1s. shares, but only a small portion of this will be required to get into profitable ore ground. Within 15 months there can be no doubt this mine will pay 4000s. to 5000s. per year in profits, and will continue as profitable for a lifetime.

BELL VEAN TIN AND COPPER MINING COMPANY (Limited).—Readers of the *Mining Journal* can scarcely have failed to notice favourable letters which have appeared concerning a mine of this name, and a company has recently been formed in the North to purchase and work it. The sett is situated in the parish of Gwenap, Cornwall, and is nearly rectangular in form, being about 640 yards in length from east to west along the line of the lodes, and about 280 yards in breadth from north to south. The report states that it has several proved lodes, which so converge as to make many intersections, and the district is very famous for mineral wealth. There is a low adit which traverses the property at a depth of 40 fms. at Mitchell's shaft, driving it to that depth, and affording communication from the shaft northward across the sett. The facilities for transport by rail or water are excellent, and there is a tin smelting works within a mile of the mine. The lease is dated July, 1878, for 21 years, and the dues are 1s. 18d. The capital is 24,000s., in 2s. shares.

ROCH FELSPAR COMPANY (Limited).—This concern at present being brought out is understood to be a most promising one. The attention of investors would be directed to it by a notice in last week's *Journal*, and they have since discovered another magnificent bed of felspar in virgin ground. Of course, what information can be obtained about it at present is entirely from the promoters, but they cannot speak more highly of it, and say it is one of the best investments ever offered to the public. There is a good demand for the spar from Belgium and France. The shares are 30s. each, and a dividend is expected in the autumn.

NEW MINING COMPANY.—This company is being formed to bring out two properties in Cornwall. The first is a good silver-lead sett that has sold several thousand pounds worth of ores from about 20 fms. from surface in the day level and above, but below that little has been done. The ores produced 60 and 80 ozs. of silver per ton or even more. It is within 5 miles of a shipping port, and the roads are good. There is no doubt it is a first-class speculation, and the adjoining property is good. There is no doubt it is a first-class speculation, and the adjoining property is good. The shares are about 1-20th, with a minimum rent of 50s. a year merging into dues. It is estimated that 4000s. or 5000s. will be sufficient to put up the engine and sink 15 to 20 fms. below the old workings. At the other property a lode has been discovered on the top of the hill about 2 feet wide, with gossan, &c. The gossan will produce 12½ ozs. of silver to the ton, only about 6 ft. from surface. The same lode can, no doubt, be intersected in the valley, and a good day level brought up on its course, which work could be accomplished for a small sum. The dues are 1s. 18d., with a small rent merging in dues. Great faith can be placed in this proving a good profit for investors at present. One of the most competent mining engineers, with long experience of similar mines at home and abroad, will be secured as manager.

The following calculations show the yield per cent. on money invested at the present prices in the shares named, based upon the last average yearly dividend being maintained:—In coal and iron companies, Arniston would yield 6s.; Bolckow, Vaughan, A, 5s.; Cairnstable, 15s.; and Muntz's Metal, 9s. In oil companies, Dalmuir would yield 5s.; Oakbank, 10s.; ditto (new), 9s.; Price's Patent Candle, 7s.; Uphall, 5s.; and Young's Paraffin, 7s. Phospho-Guano would yield 2s.; Scottish Wagon, 5s.; ditto (new), 7s.; Tharsis Sulphur and Copper, 6s.; ditto (new), 6s.; Great Laxey Mine, 7s.; Liverpool Rubber, 7s.; and Milner's Safe, 8s.

J. GRANT MACLEAN, STOCK AND SHARE BROKER.

Post Office Buildings, Stirling, June 26.

Original Correspondence.

RUBY CONSOLIDATED MINING COMPANY.

SIR,—In the *Journal* of June 21 and 28 there were respectively two special notices in the leading article reflecting on the *bona fides* of the Ruby Consolidated Mining Company, now the Ruby and Dunderberg Company. The directors have during the past five years fought a battle for life, the very existence of the company having been during the whole of that time in jeopardy from the fact that the mines were held in adverse possession by an organisation which worked them, ignoring the company, and putting into the pockets of the members forming this organisation enormous profits. Under these circumstances the directors certainly deserve praise instead of censure and inuendoes. These gentlemen (Mr. W. A. Malcolm, Major-General D'Oyley, Mr. J. W. Hyde, and Mr. Laurence Malcolm) saved the property for the shareholders. This property has been declared to be by competent authorities second to none in importance in the Eureka district, and being in close proximity to the Eureka and Richmond, the management is to be commended for having obtained the report of Captain Rickard, of the Richmond, for their guidance, and not for the purpose of trafficking in the shares of the company. I have seen the report of Captain Rickard, and I beg to say that I can assure you he is the same gentleman who has the honour of managing the Richmond. His report is of a highly favourable character.—Austinfriars, July 4. GEORGE BATTERS.

LISKEARD DISTRICT.

SIR,—It may interest some to know that West Mary Ann (adjoining the sett) Wheat Mary Ann of former celebrity will soon be in a position to make a good trial of its mineral qualifications. Some time ago, instead of going on working by means of an adit level, and thus having the combined difficulties of want of ventilation and inroad of water to contend with, the management decided on sinking a shaft. This has practically been finished, and lately an engine (22-in.) and boiler were purchased. Every moment will be taken advantage of to fit and complete the arrangements for an early and active start. There is a very promising lode below the adit level of good value both for silver and lead. The shares are mostly locally held, are only 3000 in number, and the calls have been easy and about three times annually. They are worth picking up at present doubtless low prices. I have not noticed that any of the London share-dealers have had them in their lists, but probably the Liskeard shareholders could procure them. Good luck await them.

WEEKLY READER.

[For remainder of Original Correspondence, see to-day's Supplement.]

REVOLUTION IN TIN DRESSING.—The machinery which is now being erected at Wheal Jane is not unlikely to produce a great revolution in the mode of tin dressing in the county of Cornwall. Capt. Southey has not, perhaps, been the first to conceive the idea that tin might be dressed by jiggling machinery, as lead and copper have been dressed for many years, but he deserves the credit of making the first practical experiment on a tin mine. His success at West Chiverton, by the adoption and combination of some of the best principles of various jiggling machines with improvements of his own for dressing lead, forced upon him a strong conviction that similar machinery adapted for the dressing of tin would be equally efficient. And there is, perhaps, no mine in the county where such machinery could have a better test, and where its success would give a better guarantee for its general economical application. The tinstaff at Wheal Jane has a very low produce—about 24 lbs. to the ton of stuff—and is so full of mud that it is difficult to separate the minerals. It was this difficulty, perhaps, combined with the necessity of reducing the expenses of production to meet the foreign competition, that impelled Capt. Southey to venture upon the experiment and to test in a practical way that may have been the dream of others for years. And the mining community little think of what the success of such a piece of machinery means. It simply means this, however incredulous mining people may at present be—the doing away with all round bubbles, convex and concave, and the enormous expenses of dressing floors, which have been the bane of many mining properties because of their first expense, as well as the means of conveying so much tin to the Red River which ought to have been saved for the benefit of the adventurers. So far, we are glad to hear that the machinery already

erected is working in a most satisfactory manner, as far as results are concerned. Capt. Southey has been well backed up by the tin dresser, Capt. Hall, who is a very intelligent miner, and who is even more sanguine, if possible, than Captain Southey himself of the success of the machinery. One machine is already daily at work, but another is being constructed in order that all classes of stuff may be treated. At present the rough and the finer stuff coming from the stamps is mechanically separated before entering the machine, the whole working automatically, thus effecting a saving of labour, and the tin comes out as clean as at any mine in Cornwall after all the many processes to which it is generally subjected. When the whole of the machinery is completed an opportunity will be given of inspecting it in full operation, and practical men will be able to judge for themselves as to its efficiency and economy. Meantime Capt. Southey has effected a wonderful economy in other directions in the working of Wheal Jane; and, as a proof of this, we may state, on the authority of the cost-book itself, which we saw on Saturday last, that in May, 1878, the cost for that month for carriage and cart-horse hire was 52s., whilst for the corresponding month of the year the cost for carrying an equal if not larger amount of stuff was 26s.; and comparing the stamps and dressing costs for the months of May, 1878 and 1879, we found that whilst in the former year it was 7s., this year it was 3s. only. The total costs for the same month in 1878 were 492s., and in 1879, 297s., or about one half—a most remarkable difference, and this must be mainly attributable to the tramways and the stone-breaking machine, as well as other economies introduced by Capt. Southey during the year, preparing himself for the struggle which he saw before him, and which, so far, he has contended against most pluckily. With him the old proverb seems to have come true, that necessity is the mother of invention; and, happily, he has not only the genius of invention but the courage, in these depressed times, to carry his inventions out, and it is to be hoped they will lead to the great advantage of mining generally in the county. We have often heard it remarked that tin-dressing was a clumsy, complicated, and unscientific operation, ending in much waste after the greatest care had been bestowed upon it; but should this machinery accomplish all that is anticipated of it a wonderful revolution will be effected.—*West Briton*.

THE WEEK.

SATURDAY, JUNE 28.—Sales of Egyptians were again made, the feeling being that now the Khedive was deposed there was nothing more to "go for." The United declined to 49, and the Preference to 72s. Railways were a dull market, North British fell 1s., to 7s., while Brighton, A, and Dover, A, were again pushed lower. The American and miscellaneous markets were firm, and a good business was done. Erie First Mortgage rose to 11s., and the Second to 17. The recent issue of Mexican Railway 8 per

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

ROOKHOPE.—At one time these shares were 7*l.* each; then the capital failed, and there was a "reconstruction," and by the issue of shares at 1*l.* 10*s.* each 600*t.* fresh capital was raised. Only a few months ago the reports were very encouraging, and we were led by the agents to expect 60 to 80 tons of lead ore per month, and a good profit. Now the capital has again failed, the company in debt 1650*t.*, and 600*t.* more required to place the mine on a "sound" basis. But this, it seems, the shareholders are slow in advancing; and we suppose it will be the old story, they will let the mine slip, and allow some one else to reap the benefit of the very heavy outlay they have expended. That the mine is a good one the report of Captain Tchkin clearly shows, and it has, he says, 2000 fms. of lead ground in reserve. But the fact is, disappointed at the non-realisation of the report previously made, shareholders become lukewarm when asked for money; and, in the second place, do not like debentures. If the directors could issue additional shares at a low price we doubt not they would be taken up fast enough; and if this cannot be done the shareholders should come forward, as a large shareholder proposes, and subscribe a small sum each.

Another mine, NORTH LAXEY, has been bought in the Isle of Man for 1000*t.*, and 1000*t.* more is required to pay off all the debts; the purchaser, therefore, offers an interest in it at the rate of 2000*t.* to all shareholders in the old company *pro rata*. The mine has made large returns of lead, and has had a very large sum of money spent upon it.

GREAT LAXEY.—We learn from the Isle of Man Times that on June 21, the day appointed by the directors for the men on strike to return to their work, only two men gave in their names. The directors, it is said, are making preparations for bringing over labour. A proposal, however, has been made that a late manager, Capt. Rowe, should be appointed to arbitrate between the men and directors, and it is hoped this will be carried out to a successful issue. These strikes are very disastrous, both to the men and to the shareholders.

M^r. WILLIAM H. H. WATSON begs to offer his advice and services to Shareholders and Intending Investors in Mines, and in the Purchase and Sale of Shares. Has Special Business in WHEAL CREBOR; and 25 shares in ARENDAL FOR SALE at £3*l* net, £4 paid.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE ALYN BANK COAL AND CANNEL COMPANY (Limited).—Capital 20,000*t.*, in shares of 1*l*. The purchasing or otherwise acquiring the business, goodwill, property, assets, liabilities, &c., of the Alyn Bank United Colliery Company (Limited) now in liquidation, on the terms mentioned in a special resolution passed and confirmed by the Alyn Bank United Company (Limited), carrying into effect any contracts or agreements relating thereto, and generally to carry on the business of colliery proprietors. The searching for, getting, working, raising, and selling and disposing of coal, iron-stone, and clay, and working the said collieries and brickworks. The subscribers (who take one share each) are—R. Larchin, 4*l*; Finsbury-circus, co-owner; A. Fowler, Bridge of Allen, no occupation; H. G. Gush, Crouchend, secretary; J. J. Lynch, 3*l* 4*s*; Great Winchester-street, merchant; W. McCullach, 23, Old Broad-street, engineer; H. Battie, 6, Howland-street, shorthand writer; J. Hicks, 25, Abingdon Villas, merchant's clerk. The names of the first directors shall be determined by the subscribers, who shall continue in office until the second ordinary general meeting of the company. The remuneration of directors shall be as the company may from time to time determine, the number not to be less than three or more than nine. No person will be eligible unless he be a duly registered shareholder.

THE CARDIFF COFFEE TAVERNS COMPANY (Limited).—Capital 20,000*t.*, in shares of 1*l*. To establish coffee taverns in and about Cardiff, and to carry on the business of a coffee and refreshment company, no intoxicating liquors to be consumed or sold. The subscribers are—A. Bassett, Cardiff, 100; L. Williams, Cardiff, 50; D. Lewis, Cardiff, 25; J. A. Le Boulanger, Cardiff, 25; G. A. Jones, Cardiff, 10; P. Price, Cardiff, 25; A. B. Bassett, Llandaff, 10; H. J. Paine, Cardiff, 100.

JOINT STOCK INVESTMENT ASSOCIATION (Limited).—Capital 10,000*t.*, in 20 founders' shares of 5*l*. and 1800 shares of 5*l*. The discounting bills, promissory notes, granting loans, receiving money on deposit, and the transacting of any business of a merchant or capitalist. The subscribers (who take one share each) are—W. H. Graham, Acock's Green; W. Woolley, Birmingham; J. G. Garland, Birmingham; T. Jackson, Birmingham; W. Carr-Turnbull, Birmingham; T. E. Davies, Edgbaston; G. Johnson, Sutton Coldfield.

HUNTER AND COMPANY (Limited).—Capital 5000*t.*, in shares of 5*l*. each. To purchase and carry on the wholesale grocery, drap, drysalting, and manufacturing of confectionary businesses now belonging to J. W. Hunter, at Stockton-on-Tees. The subscribers (who take one share each) are—C. Keithly, Stockton-on-Tees; C. Smeat, Yarn; J. W. Hunter, Stockton; F. Thomas, Stockton; W. Hunter, Stockton; W. F. Wallace, Stockton-on-Tees; J. G. Hunter, Stockton-on-Tees.

THE IPSWICH MARITIME ASSURANCE (Limited).—To insure upon the mutual principle against every description of marine risk, every member undertaking to contribute to the company's assets in the event of its being wound up during and within one year of the time he is a member to the extent of 10*l*. The subscribers are—E. Goddard, Ipswich; W. Bayley, Ipswich; W. Bawlop, Ipswich; E. Garwood, Ipswich; W. J. Garrod, Ipswich; G. H. Hamby, Ipswich; A. Cobbold, Ipswich.

THE MIRROR LAUNDRY COMPANY (Limited).—Capital 15,000*t.*, in shares of 10*l*. To acquire the premises at Putney, and to continue the business of a laundry. The subscribers are—F. Styring, Poole, 50; T. Walmsley, Tunbridge Wells, 50; F. H. S. Styring, Poole, 50; J. Crossland, Huddersfield, 80; J. H. Outhwaite, 4, Agar-street, 5; J. Wing, Sheffield, 1; V. Lewis, 6, Cowley-street, 1.

AMEDEE JOUBERT AND COMPANY (Limited).—Capital 5000*t.*, in shares of 10*l*. To purchase the business of painters, house decorators, upholsterers, &c., of Messrs. Amédée Joubert and Sons, at Hammersmith and 7, Percy-street, and to carry on said business. The subscribers (who take one share each) are—A. O. Bayley, Sutton; W. S. Ogle, 90, Cannon-street; H. C. R. Joubert, 7, Percy-street; J. Joubert, 7, Percy-street; W. White, 50, Regent-road; E. B. Lawes, 26, Bucklesbury; H. J. Davey, Stoke Newington.

SPELTER.—The following figures represent the exports of spelter during the first five months of the years:—1877, 2152 tons, value 45,022*l*; average price per ton 22*l*. 6*s*.; 1878, 2839 tons, value 57,868*l*; average price per ton 19*l*. 10*s*.; 1879, 2121 tons, value 53,881*l*; average price per ton 18*l*. 1*s*.

Mining Correspondence.

BRITISH MINES.

ABERLYN.—J. Roberts, July 2: The No. 2 end on the heading is mixed more with quartz than I have yet seen it, and looks very promising for lead. It contains still a good quantity of blonde. The lode in the No. 2 on the shale seems to be widening out very much, and approaching nearly the character of the great lode. We have cut through it 3*f.*, and have no appearance of the hanging wall. It is looking very well for blonde. The clearing of the deep adit on the shale is still rather a tedious job. We have no idea how far this end is driven. We shall sample 50 tons of blonde to-morrow.

BETTWYS-Y-COED.—H. T. Haley, July 3: The different points underground fully maintain the value given last week. Now that we have a good supply of water for dressing shall make better progress, and hope quickly to have a parcel of lead for sale. We have cleared the old levels east and west of engine-shaft, and find the lode is large, and of a very strong and masterly character, containing good lead, blonde, spar, &c., but not sufficiently exposed to give its value.

BLAEN CAELAN UNITED.—J. P. July 2: Since my last report better progress has been making in the 30 east, and will shortly hole to the winze sunk from the 20; I find the lode 2 fathoms wide behind the forebreast, containing lead and copper worth 30*l*. per fathom. In the back of the adit level, west of engine-shaft, very good stopes will be laid open, and will be worked at a profit; there is a very large extent of ground west of shaft opened by the level, but untouched, and will probably pay to work to the surface. Machinery working well.

BLUE HILLS.—S. Bennetts, P. Vian, June 28: The lode in the 30 east end is 1*f*. 6*s*. wide, and worth 6*l*. per fathom. A stop in the back of this level is worth 7*f.* per fathom, and another in the bottom of the level 16*f.* per fathom. In the shaft no lode has been taken up since last reported on.

BODIDRIS.—H. Hotchkiss, July 1: I am pleased to say we have held the lode with the rise, and shall lose no time now in making this complete down to the 60, so that all stuff from here will for the future be drawn up this shaft when it is completed, which will take a few weeks to accomplish. On the south side of the rise, near the top, we have cut into the lode about 4*f.*, in order to see what it is like. I am pleased to say it contains lead ore throughout in soft ground, and the whole of the leadstuff looks very kindly. Of course we cannot do any more at it until the shaft is completed to the 60, which shall be done as early as possible, as I shall have the rismen to assist the shaftmen at this work. I shall put 30 of the shaftmen to prepare for removing the winch and open a water-course to take off the water from the dressing-rooms, which must be done before we begin to dress. I have the carpenter altering the jutting hatches, making them self-acting, whereby I hope to get over more work with them. The 60 end east is still in the hard bar of ground, so there is no change here calling for remark. The 45 end on middle lode, is without material alteration; everything here tends to show that when the Craiglog lode is met with it will be found productive, as the measures here are of the very best, and the joint we are now driving on continues to show very nice specimen of lead ore.

CLEMENTINA.—J. Roberts, W. Sandoe, July 2: The lift in the road side shaft is dropped to the bottom. The pulley stands for the rods from the water-wheel to the engine-shaft are nearly completed.

COMBMARTIN.—T. Comer, July 3: The lode in the winze sinking below the adit level is gradually improving as we get deeper. The leader part of the lode is 1*f*. 6*s*. wide, yielding beautiful silver lead ore; worth 6*l*. per fathom, and has every appearance of further improving quickly. Good progress continues to be made in the rise above the adit level. The lode is the whole width of the rise (4*f.*), with a nice little leader of lead on the footwall; good saving work for dressing. The counter lode in the south east end of adit level presents a very encouraging appearance; the lode is 2*f.* wide, composed of friable quartz, flookan, and killas thickly spotted with lead, blonde, and mundic. The ground in the adit cross-cut has a very lodey appearance, it being of a nice blue killas, with seams of quartz, and small veins of capel, with faces of lead and mundic in the joints, and the end is letting out a good deal of water, which leads us to think we are approaching another lode.

CWMYSTWITH.—July 2: We have nothing new to report in Gill's lower level, as no lode has been taken down during the last week, and only 1*f.* driven (which was driven by hand labour), owing to the brass of our air compressor breaking, and we had to remain idle until a new one could be got. No change in either of our cross cuts. Our stopes and pitches throughout the mine are maintaining their respective values, as reported last week. We still have an abundance of water for all our machinery, and our dressing is being carried on with its usual regularity. Samples of 5*t.* tons of lead ore were sent out yesterday for sale on the 15th inst.

DE BROKE.—J. Phillips, July 2: In the 35, driving east, we have got an improvement, and are raising some good orestuff on the main lode against the caunter, and also ribs of solid ore on that lode. The stopes, on the whole, are yielding quite as much ore as usual, and are fairly promising as to continuance. The tributaries are working steadily, but their ground has rather fallen off in production. Samples of 20 tons of lead ore were posted yesterday. The whole of the plant and machinery is in good working order.

DERESBY CONSOLS.—J. Roberts, W. Sandoe, July 2: The ground in the end we are driving towards Cobbler's lode is much wetter, and a little easier for driving. The ground is now almost spent, assuming the lode keeps its dip, as set out at surface, and we may expect any week to intersect the lode.

DERESBY MOUNTAIN.—J. Roberts, W. Sandoe, July 2: No. 1 end and the No. 2 are very similar to what they were last week. The stopes at No. 2 does not look quite as well close to the rise, but a little further from it the lode looks a little better, so on the whole it is very much the same. The stopes on the Hafna lode is without any change. We have now a good supply of water, and we are keeping the crusher going from 5 in the morning to 9 or 10 at night. At the No. 5 we have reached the place where the timber collapsed in the big stop, and we have commenced spilling through it. The workings are very wide, and require strong timber. What distance we shall have to spill we cannot tell, but assuming that it is the same length as the stopes in the No. 4 we shall have 5*f.* tons. From the side walls left we have indications of good lead being raised from the stopes by the old workers. As soon as we have got through this run and made it secure we purpose devising means for clearing up the sump below, and get directly on the lead that was left in the bottom.

DEVON GREAT CONSOLS.—Isaac Richards, July 3: Wheal Emma, Inclined Shaft: In the 137 east, east of Friend's cross-cut, the lode is 5*f.* wide, inclining of very fine capel, quartz, peach, and small quantities of mundic and copper ores. In Northway's winze in the bottom of the 162 east the lode is 4*f.* wide, and worth 8 tons of copper ore, or 9*l*, and 3 tons mundic per fathom. —New Shaft, New South Lode: In the 205 east the lode—part carrying 2*f.* wide—is composed of capel, quartz, peach, and a small quantity of both mundic and copper ores. In the 205 west the lode, 2*f.* wide, being carried, is composed of capel, quartz, peach, a small quantity of copper ore, and 2 tons mundic per fathom. In the 190 east the lode—part carrying 4*f.* wide—is worth 4 tons of copper ore, or 12*l*, and 5 tons mundic per fathom. In Knott's winze in the bottom of the 190 east the lode, 4*f.* wide, being carried, is composed of capel, quartz, some good quality copper ore, and worth for length of winze—9*f.*—9 tons mundic per fathom. In the 190 west the lode, 6*f.* being carried, is composed of very fine capel, quartz, peach, prian, 3 tons of copper ore, or 9*l*, and 8 tons mundic per fathom. In the 175 east the lode, 2*f.* of which is being carried, is composed of capel, quartz, peach, mundic, and some good quality copper ore. In the 175 west the lode is from 3 to 3*f.* wide, and worth 8 tons copper ore, or 12*l*, and 3 tons mundic per fathom. In the 175 cross-cut north, at the Railway shaft, the north part of the lode has been intersected and cut though, proving 3*f.* wide, and of a most promising description, being composed of very fine capel, quartz, peach, and copper ore worth 3 tons, or 10*l*, and 2 tons mundic per fathom. This being some 25 fathoms west of the new shaft, where the lode has proved productive for a great many fathoms in length, it is very probable that a continuation of productive ground exists contiguously between the two points of operation. We sampled on Friday, June 27, 800 21 cwt. copper ore, for sale on July 17.

DUBBY SYKE.—W. Vipond, June 27: The new shaft is still in clay, which the men are timbering as they go down. One cannot judge from anything yet seen in the shaft when the sill will be met with. There is no water yet to cause trouble in working. We have begun carting stones to wall the shaft when the sill is reached.

EAST CRAVEN MOOR.—D. Williams, July 3: The vein in the 54, east of new shaft, is heaved north by a cross course. A stop in the back of this level is worth for lead ore 4 tons per fathom. In the 54, west of shaft, the vein is 4*f.* wide, and worth 24 cwt. of lead ore per fathom. Other points underground are without any change to notice this week. We are daily expecting the new winding-engine from Messrs. Roeby and Co. The engine, bed, and pillars for same are in a forward state. Full report next week.

EAST DARREN.—July 2: In the 104 cross-cut south the ground is composed of light clay slate, carbonate of lime, and spar, containing spots of copper and lead, indicating we are near intersecting a lode. In the 92 east of cross-cut, on south lode, the men are engaged in clearing stuff; the lode when last taken down contained some good stones of lead ore. In the same level west the lode is large and harder, improving a little for ore, now yielding saving work for dressing.

In the 92 west of winze, on north branch, the lode is larger, at present yielding 12 cwt. of ore per fathom. In the 80 west of cross-cut, on south lode, we have not yet passed through the cross channel of ground disordering the lode; hence it is still unproductive. The stopes and pitches throughout the mine are without change to notice. The building of wheel pit is proceeding but slowly, the wind and rain being very hindering. The dressing and dressing are being steadily pushed forward. We sampled yesterday 45 tons of good quality silver-lead ore.

EAST ROMAN GRAVELS.—A. Waters, July 3: The sinking of the engine-shaft below the 56 is progressing with good speed, and the ground looks like lead disordered, but to-day there are signs of the different parts coming together again and becoming productive. The 75 south is in a hole 3*f.* wide, worth 3*f.* ton per fathom, and improving. No. 1 pitch in back of this level south is worth 3 tons per fathom. No. 2 pitch, south of ditto, is worth 1*f.* ton per fathom. This ore looks like dipping south over and in front of present 75 end. Pitch in the 63 south is worth 1*f.* ton per fathom. Pitch in bottom of the 56 north is worth 1*f.* ton per fathom. Pitch in bottom of the 56 south in worth 1*f.* ton per fathom. Pitch in bottom of the 40 (old level) north is worth 2*f.* ton per fathom. Pitch in bottom of the 20 north is worth 3*f.* ton per fathom. We are pushing on the dressing of ore for another sampling as fast as possible.

EAST ROMAN GRAVELS.—Arthur Waters, July 3: The boundary engine-shaft is down 8*f.* below the 56, the ground is of a favourable character. The 56 shows two divisions of lode, both of which at present are underlying the contrary way. It is likely that the main part of the lode is standing on the west side of the drivage, and I have put the men to cross-cut in that direction to prove the point. The 75 south has improved since my report of Monday last, now worth 1 to 1*f.* ton per fathom; this end is evidently entering the run of ore seen in the tributary pitch 4 to 5*f.* above the 75, in which there is a wide grey lode. We have eight pitchs working by 19 men, at an average tribute of 3*f.* 16*s*, 10*l*, per ton clear of dressing cost. The pitches are estimated to yield together 8*f.* tons per fm.

GAWTON.—George Rowe, George Rowe, Jun, June 28: The lode in the 117, west of cross-cut, is 6*f.* wide, producing arsenical mundic, spotted with ore. We have discontinued the drivage of this level, and placed the men to extend the drivage east for the present, which is very important. The lode in the 1*f.* 6*s*. level east is 7*f.* wide, of a most promising description, producing 19 tons of arsenical mundic spotted with ore per fathom. The lode in the stopes below the 108, west of wing, is worth 6*l*. per fathom. The lode in the stopes below the 108, west of wing, is worth 10*l*. per fathom. The lode in the stopes to the back of the 108 is worth 8*l*. per fathom.

PARTS.—The following figures represent the exports of spelter during the first five months of the years:—1877, 2152 tons, value 45,022*l*; average price per ton 22*l*. 6*s*.; 1878, 2839 tons, value 57,868*l*; average price per ton 19*l*. 10*s*.; 1879, 2121 tons, value 53,881*l*; average price per ton 18*l*. 1*s*.

GLENROY.—R. Rowe, July 1: We have started to drive out north and south from the bottom of the shaft, and are in about 6*f.* each way; the lode is very wide—size not yet proved. Now that we have made sufficient room the next step is to bring the machine kibble to bottom to expedite the drawing of the stur, and we have commenced to-day to timber and case the shaft down, and fix the ladder road; this will be finished by Saturday, and driving fairly resumed by Monday morning. Under any circumstances we are bound to do what we have done and are doing—that of getting the machine to draw from the present bottom, whether we drive out now, or resume the sinking. The lode is about the same in character, but I believe the shaft is going down in a barren section of the lode, and that by driving out north and south now we shall at least improve our prospects, and be better able to judge what the mine is likely to do for us.

GOGINAN.—July 2: There is no change

powerful lode, chiefly consisting of quartz, gossan, and solid stones of ore, but not in sufficient quantity to value. The Rake vein, in the engine sump (sump winze), under the 30, is 6 ft. wide, and worth for length of shaft 10 tons of rich lead ore per fathom. Fielding's vein, in the 30 north west, is 4 ft. wide, carrying a rib of ore on the heading side from 3 to 4 in. thick, solid. I am at present cross cutting east in the end to prove another branch, which I hope to find rich in ore. The tributary pitches, five in number, and worked by 18 men, are producing fair quantities of lead ore. The new machinery is working splendidly, and dressing operations are proceeding well; and, in all is well, I calculate upon raising 40 tons of lead ore, equal to about 10 tons of pig-lead, this month.

PENHALLS.—S. Bennetts, P. Vian, June 28: The lode in the 70 east end is somewhat larger than it has been, and of most promising character, worth 6s. to 7s. per fathom. In the 60 east end the top stope is small and unproductive at present. The lode in the rise in the back of the 40 west is slightly improved, and at present contains a small good lode of tin-stuff, worth 5s. per fathom. The winze below the 30 is producing some tin-stuff, but not of much value.

PENSTRUTHAL.—W. Polkinghorne, July 3: The 33 driving east of Highburrow shaft the lode is still disordered by the cross-course, and at present not of much value. The stope in the bottom of the 34, east of Highburrow shafts, the lode is large, being 6 ft. wide, and worth for the 10s. per fathom. All other bargains are without change since last reported.

ROMAN GRAVELS.—Arthur Waters, July 3: The new engine shaft is 9 fms. 1 ft. below the 110, ground of the usual character. The 110 north is a small switched up lode corresponding to the ground seen in driving the 95. A few fms. north of present end there is a very wide lode, which continues for 50 fms. beyond the old engine shaft, or 100 fathoms north of present forebreast. The 110 south is worth 1½ ton per fathom. Winze below 95, north of shaft, is down 9 fms. 5 ft.; worth 2 tons per fathom. The 95 south is suspended for the time, and the men put to rise against the winze coming down from the 80; lode worth 2 tons per fathom. The said winze below the 80 (down 8 fms. 5½ ft.) is worth 1½ ton per fathom. We are still cross-cutting east, close up to the 80 forebreast; have cut in 6 ft., but are not yet through the hanging wall part of the lode. I may say here that the footwall part of the lode is worth 2 tons per fathom. The 80, north of shaft, is worth 1 ton per fathom. The 65 south is worth 3 tons per fathom. The 49 fm. level south is worth 1½ ton per fathom. The stope generally are looking quite as well as for several months past. We sell 20 tons of lead ore on Saturday's next.

ROOKHOPPE.—Thos. Tonkin, July 3: Adit Level: Our stope on side vein near boundary are improving for ore, and the yield is now 15 cwt. of ore to the fathom; the work is also rather better to get. The stope on main leader near Gin shaft keep giving a yield of 10 cwt. of ore to the fathom. The stope in the 15 on side vein, east of Low shaft, are easy to work, and the yield of ore is 10 cwt. to the fathom; 10 cwt. to the fathom is also the yield of the stope on main leader near Gin shaft, but the ground is stiff and twisted in places. The stope above the 25 on the side vein are very easy to work, and the yield of ore at present is 8 cwt. to the fathom. The stope beneath this level on the side vein, west of flat, are now yielding 10 cwt. to the fathom, and progress good. The stope at pump-sump are easy to work, and the yield of ore 12 cwt. to the fathom. We will have a good run ore ground here. The drivage above the 42 near Gin shaft is now rather twisted, and the yield of ore 8 cwt. to the fathom; in a part of the stope, however, of which this is the forehead, we have had within her last few days ground yielding 22 cwt. of ore to the fm.; and, indeed, taking the mine on the while, it looks better to-day than for many week's past. We are now engaged in securing the rise from this level to the 25 on side vein, putting in hoppers, &c., so as to open up stope both towards Low shaft and eastward also on the course of the vein. The dressing goes on as usual, and the machinery is in good working order.

SOUTH CONDURROW.—William Rich, William Williams, Henry Abraham, July 2: The lode in the back of the 93 east is worth 2s. per fathom. The 50 end east is letting out water freely; the lode is worth 8s. per fathom. The 70 east is worth 6s. per fathom. The rise in the back of this level is worth 20s. per fathom. The lode in the 70 west yields low-quality tinstone, but it has a better appearance, and looks likely to improve. The lode in the Plantation shaft, below the 70, is worth 12s. per fathom. There is nothing new discovered in the 50 cross-cut north. The 50 west, on the north lode, is unproductive at present. The rise in the back of the 50, on the tin lode, is worth 12s. per fathom. The 50 end, east of King's, is worth 8s. per fathom. The rise in the back of this level is worth 12s. per fathom. There is nothing new to report to the 50 and the 40 ends east.

SOUTH DARREN.—Henry James, July 3: The sinking of the shaft is progressing well, 4 ft. 3 in. being sunk during the past week; the lode carried in sinking continues to look very encouraging, producing good solid ribs of copper ore, with an improving mixture of lead ore. The lode in the 100 west is worth 2½ tons per fathom; the men from this end are still stopping a piece of the back, worth 2½ tons per fathom. The two stope in back, east of winze (No. 2), are worth together 3 tons silver lead ore per fathom for width of lode. We are preparing to sink a winze from this level to the 110. The lode in the 90 end is improving a little as we advance. No. 1 stope in back of this level is worth 1½ ton per fathom, and No. 2 stope 1 ton per fathom. The stope in back of the 80 is worth 1½ ton per fathom. The sinking of the winze in this level is progressing well. The 50 tons of silver lead ore sold June 27 realised 6221. 10s.

SOUTH TOLCARNE.—Wm. Rich, J. Knottwell, July 2: We have cut through the cross course in the 33 end east; the copper lode is cut off by it. We shall probably have to drive a short distance north to intersect it. The rise in the back of the 50 is in easy ground, and the lode yields occasionally good stones of copper.

TAMAR.—R. Goldsworthy, July 3: I am glad to tell you that we are making good progress in driving the 27 fm. level south. The lode is greatly improved, now producing saving work, and from its promising appearance we expect a further improvement daily.

TANKERVILLE.—Arthur Waters, July 3: The lode along the 220 east and west of shaft cross-cut is widening and improving. The 206 east is worth 1½ ton per fathom. The 206 west is also worth 1½ ton per fathom. The winze below this level west is worth 3 tons per fathom. The stope and other points as for some time past. We are delivering the ore as fast as our carriers can take it.

TEESDALE.—June 25: West End Forehead: This working is nothing like as good as when I last saw it, though it carries its full width of vein, and is very mineral-like. Another back will make all the difference with it, though it is yet by no means a bad working. The west end stope still continues with little or no alteration; some shots reveal very fair good ore, and others show it just as poor; it is being knocked down all together—poor and rich. They have had some better ore in the west end rise since last report than ever before, though it was very much poorer at the time I saw it; we want to be 6 ft. higher up. There is little to report from the north end east, excepting that we have reached the old man, but there is a useful payable height left before us; the men have done well, and are likely to do so, at 30s. per bing. Two men are picking about among the old men's workings, where I think they will be able to realise more than will pay their expenses. Dressing is kept going, and is doing fairly well in producing lead ore. We could have accomplished 12 or 15 tons in addition to the 15 tons 6 cwt. sold to the London Lead Company. The west end forehead has yielded more lead ore in the last 2 fms. driving than ever it has done before.

TYN-Y-FRON.—E. Jones, July 1: We are getting on with the kilns as fast as the weather will allow; the front walls are almost finished. We have got all our machinery, timber, &c., from Tyllwyd Mine; we find it in very good condition, the flat and round boulders, hand-jacks, and 12 ft. wheel especially. The weather is very unfavourable and wet, consequently the masons cannot work very regularly, but they are at it every moment they possibly can. We have now a good stock of machinery for dressing blends and lead, and we hope as soon as it is erected to make such sales of ore as will give the shareholders satisfaction.

VAUGHAN.—July 2: In the stope over the 30, west of winze, on south part of lode, the lode is from 9 to 10 ft. wide, yielding 1½ ton of lead ore per fathom. At present we have two men engaged in securing and repairing mouth of drift adit level, which is nearly broken down. The machinery is in good order, drawing, &c., progressing regularly with a full supply of water. Samples of 20 tons of silver lead ore taken out yesterday (Tuesday), for sale on the 15th last.

WEST CRAVEN MOOR.—David Williams, July 3: Blackhill Level: This level is extended east of New Blackhill shaft 90 ft., 2 ft., and is within about 20 fms. of being under the perpendicular of New West shaft, and within 14 fms. of the ore ground going down in the winze below the 20. The 20 stope in the back of the level, by two men, is worth 12 cwt. of lead ore per fathom.—New East Shaft: In consequence of the heavy rains of late we have not been able to continue the sinking below the 20 this week. We have commenced sinking a winze below the 20 upon No. 2 vein, which is 2 ft. wide, and producing 20 cwt. of lead ore per fathom. A stope in the back of this level, by two men, is worth 15 cwt. of lead ore per fathom. We have carted 20 tons of lead ore to the smeltmill.

WEST YORK.—S. Harris, July 3: I have been underground this morning, we are progressing very satisfactorily with the winze below the adit level, which is now down 5 ft.; the lode is 3 ft. wide, of a most promising appearance. I have assayed a sample from it this morning, which produced 14 lbs. of per ton of stuff. I hope to be able to sink several fathoms before winter sets in, which I think very important for our future.

WEST WHEAL PEEVOR.—W. T. White, July 1: Since the intersection of the Wheal Pevor south lode at the 10 fm. level on Tuesday last we have opened on it, and find it to be about 4 ft. in width; the leading part of this lode is about 2 ft. wide, producing excellent quality tin-stuff, quite as good I think as the sample previously taken—1 cwt. 1 qr. of black tin to the ton of the tin-stuff. The remaining 2 ft. consist principally of branches which contain some good work for tin. We have about 8 tons of tin-stuff drawn to surface, and shall open out levels east and west from cross-cut, so as to make returns of tin. The discovery of such a valuable lode at such a shallow depth is of great importance, and judging from its present appearance I expect we shall open up some good ground at this and the next level. The engine-shaft is now in full course of sinking by 12 men to reach the 20 fm. level, where I am sanguine of finding even a better lode than we now have at the 10 fm. level. The appearance of the tin-stuff is so much like that in Wheal Pevor that it is not easy to see any difference, and there is no doubt of its being a continuation of the same run of tin ground as we have in that mine.

WEST WHEAL TOLGUS.—July 3: The lode in the 155, west of Taylor's shaft, is 2½ ft. wide, and yielding ½ ton of copper ore per fathom. The ground is still very hard and spare for driving. The lode in the 145, west of shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 145, east of No. 1 cross-cut, is 3½ ft. wide, and yielding ½ ton of ore per fathom, and the ground is more favourable for driving. The lode in the 135, west of shaft, is 2 ft. wide, and yielding good stones of ore. The lode in No. 5 winze, in the bottom of this level, is 1½ ft. wide, yielding a little ore, but not sufficient to value. There is nothing new to report in the value of any of the stope in this part of the mine.—Richards' Shaft: The lode in the 95, west of shaft, is 5 ft. wide, yielding very good stones of ore, and letting out a large quantity of water. The lode in the 65, west of shaft, is 4 ft. wide, containing small branches of ore, and looking promising as an improvement.

WHEAL GRENVILLE.—T. Hodge, July 3: At Goold's shaft the sumpmen are engaged cutting ground for the feed-off bob at the 140 fm. level. There is no change in the 165 since my last. The lode in the 160 east end is not looking so well; present value 6s. per fathom; ground driven during the past four weeks 8 fms. 1 ft. 4 in. Angove's winze, sinking below the 160, is down about 4½ ft., the lode in which is worth 10s. per fathom; the water here is too powerful for manual labour, therefore we are compelled to suspend operations until it is drained by the level below. The 160 east end is worth 6s. per fathom. The 160 has entirely drained this level. The 160 stope on the whole are turning out much the same as usual.

WHEAL RUSSELL.—John Bray, July 3: The lode in the rise above the 25 is 3 ft. wide, producing rich stones of copper, bursting with water strongly mineralised. The lode in the 25 end is 1 ft. wide, spotted with mica and copper looking favourable.

WHEAL LUNY.—William Rich, Matthew Rogers, June 28: We have commenced the old engine shaft with the rise in the back of the 170, and have fixed the

skiproad complete to the bottom of the mine. We are urging on the 170 west by six men; the lode in the end has a kindly appearance, and yields a little tin. The lode is good in the bottom of the 160, and we hope to have the same run of tin ground in the 170 west. The 160, east of Goolding's, yields a little tin, and the ground is easy for driving. The lode in the 160, west of incline-shaft, is worth 9s. per fathom. The 160 end west carries stones of tin. The 160 end east is worth 6s. per fathom.

THE ALMADA AND TIRITO CONSOLIDATED SILVER MINING COMPANY (LIMITED).

DIOS PADRE.—Capt. N. C. Moreton, April 21: The end driving north from Cruz Verde shaft has passed into the Dios Padre stope. The character of the lode is much as usual. The ley from the end and stopes has improved a little of late.

April 28.—The end driving north produces a little green ore, but not sufficient to set the expenses of driving at present. As the level advances further into the set we shall look for it to improve. The natives speak of ore being left a little ahead of our present end.

May 5.—The end driving north is much the same as when last reported.

May 12.—The lode in the end driving north has some good stones of green ore. The stope above this level is a little poorer than for some weeks past.

MINA GRANDE.—April 21: The 12 fm. level, driving north, has a very good appearance, some fine stones of ore being met with. The black ore stope below tunnel level still maintains its productivity and splendid appearance.

April 28.—The 12 fm. level, driving north, is yielding some very fine stones of galena and black ore. The present appearance is very encouraging. The big black ore stope below tunnel level is looking as well as it is wont to do.

May 5.—In the 12 fm. level, driving north, the lode has changed its gangue from quartz to felspar. The present value of the end is about 1½ ton per fathom. If the large course of ore above inclines to the north and west, as every indication declares it does, we ought soon to cut it in this end.

May 12.—The lode in the 12 north has continued to improve, now worth 5 tons of black ore per fathom. The lode consists of galena, black copper ore, and a little blonde. There is not much doubt we are in contact with the same course of ore coming down from the big black ore stope below tunnel level.

LA VIRGEN, EASTWARD.—April 21: The stope in the back of tunnel is fairly productive of green ore.

April 28.—There is virtually nothing new to report at this point. The lode is fairly productive of green ore, and bids fair to continue so. The stope between the tunnel level and the 10 fm. level, on the Virgin branch, is producing black ore in fair quantities. A cross-cut of a few feet east at the 10 fm. level has cut through the same branch. It is about 4 ft. wide, and intact to the tunnel level as well as below it. We shall drive a little on its course to prove it. It does not contain at present ore in sufficient quantities to pay the expense of driving.

May 5.—The stope above the tunnel level, on the green ore, continue the same as for some time past. The black ore stope between the tunnel and the 10 fm. level is still productive of black ore in paying quantities.

May 12.—There is not much doing in the green ore stope above tunnel level. At present it is being filled up with deads, in order to keep the sides open, which are weak and dangerous. The stope below tunnel on the black ore part of the lode is much as usual.

LA PROVIDENCIA.—April 21: This stope has undergone no change worthy of notice. It is fairly productive of green ore, and always shows more or less petanque.

April 28.—The stope is much as usual as regards productivity in green ore. It has, however, of late been giving some very fine stones of rich black ore, and a little petanque dispersed throughout.

May 5.—The big green ore stope above tunnel level has undergone no change worthy of notice. It is as productive as usual.

May 12.—The old stope continues much as it has been for some time past. It is not rich, nevertheless it yields metal in paying quantities.

SAN PEDRO.—April 21: The communication to the new rise from this stope is complete. The ventilation is perfect. Stopping is commenced in the back of the old green ore left in former workings. We anticipate this old stope will yield us a large quantity of green ore.

April 28.—Last week we stated this old stope to have been put in communication with the new rise from tunnel level, and the ventilation to be good. We have now to state that we are fully abreast with all the old stope left by former workers. Stopping has been commenced, and I am pleased to say a very good lode is laying open some for time past. The black ore stope between the tunnel and the 10 fm. level is still productive of black ore in paying quantities.

May 5.—There is nothing doing here at present, as it produces chiefly second-class ore, of which we are not in need just now, as the other stope afford us a greater supply than the mill can dispatch in its present bad state.

J. H. CLEMENS.—May 3.—Underground: The chief points of interest just now are the San Pedro ore chamber and the 12 fm. level, Mina Grande. At the former we are

now working, and making everything secure, which will enable us shortly to attack it with great vigour.

FIRST LODE.—April 21: There has been but little done here of late. The lode is of little value in the present stope.

May 12.—There is nothing doing here at present, as it produces chiefly second-class ore, of which we are not in need just now, as the other stope afford us a greater supply than the mill can dispatch in its present bad state.

JOHN LODE.—April 21: There has been but little done here of late. The lode is of little value in the present stope.

May 12.—The north part of the stope is looking well. We are filling up the old workings, and making everything secure, which will enable us shortly to attack it with great vigour.

FOREST LODE.—April 21: There has been but little done here of late. The lode is of little value in the present stope.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro June 23: Produce nine days, second division of June, 10,250 oits.=3971. 50; yield 6 oits. per ton. Letters received, dated June 2—All going on well.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$55,000, from 937 tons of ore. Doré bars from refinery, \$45,000.

R. RICKARD.—June 11: Since my last there is no particular change to mention in the different workings of the mine. The 200 cross-cut has been advanced 14 ft.; the ground in the present is somewhat more favourable for driving. The 400 on quartz has been drilled 27 ft., without any change in the ground. The 500 north cross-cut has been drilled 27 ft.; the present end is in hard limestone. A drift has been started to explore the ground standing between the 600 north cross-cut—the 600 north on fissure; during the past week it has been drilled 30 ft.; the present end is in favourable ground for ore. The 600 west drift has been advanced 11 ft.; this drift is still in very hard limestone, consequently slow progress is being made. The 900 north cross-cut is still in shale; during the past week it has been drilled since my last 14 ft. On the whole, the chambers are looking about the same, and are turning out the usual quantity of fair green ore. The machinery both in mine and smelting works is in very good working order.

OREGON.—F. Ennis, June 10: The clean-up for May was 114½ cwt., which I have shipped to mint; will net about 2000. Cost sheet for same month \$267.6

the rate of 20 per cent. per annum, were sold at 7s. per share, representing a premium of 250 per cent. upon the amount of the paid-up shares.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JULY 4, 1879.

IRON.	2 s. d.	2 s. d.
Fig. GMB, f.o.b., Clyde.	2	10
" Scotch, all No. 1.	2	20
" 2	3	50
Bars, Welsh, f.o.b., Wales.	4	12
" " London.	5	2
" " Stafford.	8	5
" " Tyne or Tees.	5	5
" " Swedish.	8	0
Walls, Welsh, at works.	4	10
Sheets, Steel, in London.	7	5
Plates, ship, in London.	5	12
Hoops, Staff.	6	10
Hall rods, Staff. in London.	5	15
STEEL.		
English, spring.	13	0
" cast.	10	0
" Swedish, kug.	13	0
" " gam.	15	0
LEAD.		
English, pig, common.	13	7
" L.B.	13	15
" W.B.	14	0
" sheet and bar.	14	5
" pipe.	15	0
" red.	15	5
" white.	25	0
" patent shot.	18	0
Spanish.	13	5
NICKEL.		
Metal, per cwt.	18	0
Ore, 10 per cent. per ton.	24	0
QUICKSILVER.		
Flasks of 75 lbs. ware.	6	0
SPELTER.		
Silesian.	14	0
English, Swansea.	16	0
Sheet zinc.	18	10
At the works, 1s. to 1s. 6d. per box less for ordinary; 1s. per ton less for Canada; 1s. 6s. per box more than 10 quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.		

REMARKS.—Since our last report there has been scarcely any change in the general condition of our market. Sellers of most metals have fairly maintained their quotations, but the demand does not improve, and the trade generally has fallen again into a state of inactivity. Business during the remainder of the year will depend in some measure upon the result of the harvest, although at the moment it is not expected by some persons that a very prolific harvest will be forthcoming this year, nevertheless it is to be hoped these expectations will not be realised; but that a plentiful harvest, together with a revival in trade, may ensue. The long depression which has prevailed during the last three or four years has been caused partly by the repeated deficient harvests, combined with the disastrous famines which took place in India and China, the former greatly affecting the home markets, and the two latter seriously checking the progress of the export trade. Although these have been material impediments, still they have not formed the chief causes, for the main reasons have evidently been the political disturbances, and also the foreign repudiations of State loans. The rashness which has since come to light respecting the issue of foreign loans has prudently led to a curtailment of credit to foreign Governments, which has put an immediate stop to many of their schemes and wild undertakings. The commercial circle is, therefore, suffering from the greater caution now exercised in financial circles, but although these restrictions of trade are attended with distressing circumstances to the working classes, yet it is to be hoped they will prove but temporary, and that business will be placed upon a sounder basis than hitherto.

The British public have too often been defrauded by foreign Governments promising to pay a slightly better interest for money beyond that to be obtained by investment in British and colonial securities; but in the majority of instances it has been proved that the promises made were not worth the paper they were written upon, and that the real curse of evil to the trade rests with those nations who have forfeited their reputation and credit by entering into fraudulent and swindling transactions for the mere purpose of drawing money out of the pockets of credulous lenders. Seeing the utter demoralisation of many foreign Governments, it is not surprising that the taunt should extend to the commercial communities of those countries; and, as a contraction of credit means a contraction of business, it is only natural that there should be a considerable falling off in commerce with those nations which have acted so dishonorably in the past, and proved themselves so utterly unworthy of our confidence. The only way to wipe out a disgraceful abuse of trust is to make the best possible amends, and in order to do this the greatest sacrifices should be submitted to in redeem the national honour and credit.

COPPER.—The alterations which have taken place in this market during the week have been of a trifling character, and sellers, though maintaining their quotations, have not succeeded in obtaining any enhanced value. It is satisfactory to be able to state that, according to the statistics published on the 1st inst., the total visible stock has been diminished by 1529 tons, and it now amounts to 54,839 tons, against 55,468 tons on June 1. Nevertheless, although it is well for the trade that a reduction should have taken place, the fact should not be overlooked that the stock on June 1 was by far the highest on record, and therefore the large quantity which is still left for disposal is a great deal above what it should be to allow of higher rates yet awhile. The deliveries of Chilli copper were very good during the last fortnight of June, being 2875 tons; but it is to be regretted that for the same time the imports exceeded them, and are reported to have been 3333 tons. The total stock of Chilli produced in Liverpool and Swansea is said to be 29,776 tons, against 29,318 tons on the 14th inst. On the whole, these statistics are tolerably satisfactory, for although the diminution which has taken place is small, yet the previous returns have for so long past shown the stock to be on the increase, that it is encouraging to find at last it has begun to take a downward turn; and as the charters of late have been light, it is not improbable that if they so continue, and the deliveries are maintained, that the next statistics may be still further lessened, and thus afford sellers an opportunity of obtaining higher prices.

IRON.—This market remains very quiet, and no alteration has taken place in quotations. The demand keeps most inactive, and only but a limited number of orders are received by the ironmasters. All the works, or with only but few exceptions, are suffering very much from want of employment, and more mills are again reported to have been closed through the continued increase in the depression; and thus many hundreds of hands find themselves entirely void of employment. It is reported from Sheffield that serious depression prevails in this district; and, although a slight improvement has set in for other descriptions of commerce, there is not the least indication of any improvement in the iron trade, and there seems little prospect of any increase in business taking place for some time to come. The home demand is said to be slightly weaker, and that for shipping account remains unaltered. The markets in this district display a most inanimate appearance, on account of trade being entirely void of speculation. It is thought by some that a slight improvement has set in with the trade with America, and owing to the reduced cost of production the Sheffield makers are enabled to compete on more favourable terms. Although orders are still scarce from this country, they are reported to be more numerous than they were last year.

The returns from Newport are unsatisfactory, and to show the enormous losses now attending production, the losses incurred in the output of the Rhymney Iron Company and the Ebbw Vale Iron Company during the last year have been quoted. The former works made a loss in producing nearly 39,000 tons, and the output diminished from 40,685 tons in 1878, to 10,144 tons in 1879, and it is worthy here to remark to show how steel in taking the place of iron that during the same period the output of steel rose from 7757 tons to 32,815 tons. The total loss of the Ebbw Vale Works in producing is said to be about 42,000. The clearances from this district keep limited, the chief having been made to India. Sellers continue to quote at previous rates. The ironmasters at Leeds are said to be most indifferent employed, though it is said that the demand for best Yorkshire brands has been rather more active, nevertheless prices have in no way improved. The enquiries for manufactured iron are scarce at last week's figures. The Middlesborough market keeps very dull, and business transactions remain most limited, and prices are becoming weaker, makers now quoting No. 3 at 3s., and No. 4 at 3s. to 3s. 3d. These continued diminished prices are not surprising, as the statistics published on the 30th inst. show that the stock is increasing, the total stock in Messrs. Connal and Co.'s stores there on that date being 80,200 tons, which shows an increase of 100 tons, with warrants in circulation for 79,249 tons. The deliveries of pigs to German ports are said to have been fairly maintained, but those to other countries remain unsatisfactory, and the shipments to Scotland are said to be below the average. Stocks are expected shortly to increase still more as the demand does not improve, and further than this, the Cleveland furnaces have got in regular blast again, so unless some improvement in trade soon sets in the output will probably be above the requirements.

The manufactured trade keeps quiet, the greater portion of the orders which come to hand being for ship-plates, which are chiefly executed at 4s. 17s. 6d. to 5s. per ton. Contracts for bars have been executed at 4s. 15s. per ton, and angles at 4s. 17s. 6d. per ton. The experiments of making steel from Cleveland iron is said to be progressing satisfactorily, and hopes are entertained that in the future this new process may prove a very prosperous business. The Glasgow warrant market having closed very dull last week opened slightly firmer on Monday, and a

limited number of transactions are reported at 40s. 10d. to 40s. 10s. 4d. for cash parcels, and during the week the market has shown little change, to-day's price being 40s. 10d. per ton. The demand for makers' iron keeps quiet at previous rates. The statistics published on the 30th ult. by Messrs. William Connal and Co. are most unsatisfactory, for they show that the stock is continually increasing, the total quantity now in store in Glasgow amounting to 276,602 tons, which is an increase for the month of 10,334 tons. Warrants are reported to be in circulation for 235,445 tons.

SHIPMENTS.

For the week ending June 29, 1879. Tons 7,175

For the week ending June 28, 1879. Tons 7,074

Decrease. 101

Total increase for 1879. 52,978

Imports of Middlesborough pig-iron into Grangemouth:—

For the week ending June 29, 1878. Tons 6,454

For the week ending June 28, 1879. Tons 4,310

Decrease. 2,144

Total decrease for 1879. 32,401

FURNACES.

In blast June 28, 1879. 88

In blast June 29, 1879. 94

TIN.—This market remains very quiet, and notwithstanding the reduction which has taken place in prices the market keeps very dull, for the business transacted is wholly for consumption. The total stock for June is reported to have diminished by 220 tons, and is now estimated at 17,211 tons, against 17,431 tons on May 31, and 16,776 tons on June 30, 1878. The deliveries show little change, and remain fairly satisfactory, being 1874 tons, against 1881 tons on the last day of May. The shipments from both Straits and Australia have increased, there being from the former 260 tons, against 210 tons in May, and from the latter 600 tons, against 328 tons for the same period. The price of landing tin is 64s. 10s. to 64s. 15s. per parcel, 65s. to 65s. 5s. In the absence of demand the latter will probably give way.

LEAD.—This market remains depressed, and buyers keep most inactive. Quotations, however, show no alteration, but although they are extremely low they offer no inducement whatever to purchasers to effect contracts of any magnitude.

SPELTER.—A limited business is transacted at rather firmer rates. Enquiries for both hard and Silesian come to hand very slowly.

STEEEL.—Orders are scarce, and sellers at times are slightly easier in their quotations.

TIN-PLATES.—A fair business is doing, but at slightly reduced rates, 1C coke of good brands having been sold by makers at 15s. per box, free on board London.

QUICKSILVER.—continues in the same inanimate condition. The price is still 6s., but there is scarcely any demand.

Messrs. PIXLEY and ABELL—GOLD.—There is no demand for any description of gold for export, and further amounts have been sent into the Bank. The arrivals have, however, been small, and the total so disposed of is only 87,000. The Nizam brought 43,250, from India, the Minho 6100, from the Brazil, and the Nile 40,000, from the West Indies: total, 89,350.—**SILVER.**—A better demand has been experienced since our last, and prices have improved. The silver by the Pacific steamer was sold at 51s. 4d. per oz. on Monday, showing a rise of 1/4d. on previous rates; and a still better value was obtained for the quantity by the West Indian steamer, which was placed at 51s. 6d. on Wednesday. On the result of the tenders for the Indian Council drafts becoming known a further improvement took place, and a few small amounts realised, late in the afternoon, 52s. per oz. The market is now almost bare of silver, and our quotations are nominal, 52s. 4d. being the last price. We have received during the week 38,000, from the Pacific, 49,400, from the West Indies, 45,000, from Germany, and 40,000, from New York: total, 112,400. The P. and O. steamer leaving to day takes 35,000, to

Messrs. FRENCH and SMITH—COPPER.—Moderate charters and a good consumption demand at home have kept the market steady, and Chilli bars are saleable at 1s. per ton higher than at the close of last month. Charters for first half of June were advised as 1300 tons. We quote Chilli bars 55s. 15s., Wallaroo 62s. 10s., tough 60s., manufactured 65s. 10s. to 66s. ore and regulus 9s. 1d. to 11s. 6d. per unit.

TIN.—There was a large consumption during the past month, but an entire absence of speculative buying caused the market to appear very lifeless, and prices had a downward tendency. The statistics this month show a decrease in the available supply, but in other respects present no special feature. English tin was sold at lower rates, Ingots being now quoted 64s. The Billiton Company announced that up to April, 1880, they will continue to hold bi-monthly sales, at each of which 13,000 piculs (790 tons) will be offered instead of 12,000 piculs (725 tons), as previously this year.

Messrs. JAMES, FRY, and CO.—COPPER.—Copper has held a very steady course, and prices have been well maintained for all descriptions. Chilli bars are firmly held, and are quoted from 10s. to 20s. a ton dearer. The Cape ores sold by tender yesterday at 10s. 10d. per unit, which is the same price as that realised a month ago. Iron continues heavy for all kinds. Tin has ruled flat, and without any particular quantities offering for sale, there is a fall in price of about 30s. per ton all round. Spelter, too, is again somewhat lower. Lead in small demand, and slightly easier to buy. Tin-plates quiet, but steady in quotations.

Messrs. BROOKER, DORE, and CO.—IRON.—We have no improvement to report as having taken place during the past month; in fact, generally speaking, the markets have been even more depressed, and prices still show a downward tendency. The decline in prices of pig-iron, consequent upon the termination of the Durham strike, has not been arrested, Middlesborough No. 3 being now quoted at 3s. (the minimum price at which they stood prior to the strike), and Scotch Warrants at 4s. 9d. In FINISHED IRON prices are a shade lower, except for best makes of South Staffordshire, which remain at 8s. 5s. per ton for bars, delivered f.o.b. London. It is thought that no alteration will be declared at the Quarterly Meeting to be held next week, but as Swedish iron can now be bought at the price asked by the list houses, and good second-class makes are procurable at 1s. 15s., or 30s. below the list price, we think another reduction will yet have to be made by the leading South Staffordshire makers if they wish to retain their trade.

TIN-PLATES.—Although prices for common cokes have somewhat dropped, demand continues good for best makes of charcoal, and prices are firm.

Messrs. E. P. and W. BALDWIN are well off for orders for this class of plate.

GALVANISED IRON.—The demand still keeps quiet, and we do not look for extensive orders from the Australian Colonies until stocks are further reduced. The present time offers a favourable opportunity for buyers to place contracts, as prices were never so low, and an upward movement in the Spelter market may at any time cause a rise.

LEAD.—Prices are slightly lower, but the market closes firm.

HARDWARE.—We have made further reductions: on anchors, 3d. to 6d.; chains and cables, 3d. to 1s.; and on Tinman's wire 3d. per cwt.

THE MINING SHARE MARKET has been rather quiet this week, with very little change in prices, and most of our quotations are merely nominal. The mines mostly dealt in have been Wheal Crebior, Wheal Peevor, Roman Gravels, Parys Copper, Glenroy, Wheal Grenville, South Condurrow, Penstruthal, and a few others.

TIN MINES continue flat. The standard for ore was lowered last week, although we understand there is less tin in stock, and that the shipments from Australia last month were only two thirds of what they were in June last year. In 1875 the average price of Cornish tin was 82s.; in 1876, 72s. 5s.; 1877, 65s. 7s.; 1878, 56s. 10s.; and there are now said to be 3656 fewer miners employed in Cornwall than there were last year. Wheal Peevor, 9 to 9s.; at the meeting on Tuesday the account showed a profit of 1705s. 16s. 10d. on five months' working, and a balance in hand of 2190s. 7s. 11d. A dividend of 10s. per share (1500) was declared, leaving 699s. 7s. 11d. to be carried forward. The tin sold, 165 tons, realised 594s. 13s. 3d. The costs were charged up to June 7, and consisted of labour, 2995s. 12s. 3d.; merchants' bills, 1565s. 4s. 2d.; lords' dues, 321s. 1s. 1d. The agents are pleased to be in a position to report so favourably on the mine, which is looking remarkably well, and they promise, all being well, to sell a similar quantity of tin for the next four months.

East Lovell, 1s. to 2s, paid paid; at the meeting here a call of 12s. 6d. per share was made. The accounts showed a debit balance of 1527s. 19s. 11d. for nine months' working to May 17. The next meeting is to be held in five months. The report states that at Sevorgan there is a very promising lode, which has considerably improved within the last 2 fms. It is all the width of the shaft, and producing rich work for tin, and may lead to good results. Carn Brea, 24 to 26. Dolcoath, 24 to 26. Cook's Kitchen, 1s. to 2s.; call of 10s. paid. East Pool, 9 to 9s.; South Condurrow, 11s. to 12s.; South Frances, 8 to 8s.; Tincroft, 8 to 9s.; West Basset, 3s. to 4s.; West Frances, 4s. to 5s.; Wheal Agar, 2s. to 3s.; Wheal Basset, 20s. to 25s.; Wheal Grenville, 3s. to 4s.; West Peevor, 2s. to 3s.

COPPER remains dull; but at the Cornish Ticketing on Thursday the standard advanced to 87s. 1s. = 3s. 10s. per ton of ore for 7s. 10s. The official ticketing paper erroneously states the fine copper at 14s. tons 9 cwts., instead of about 92 tons 12s.

Bry Glas is reported to be progressing satisfactorily. Cwm Brwyno are quoted 2 to 2½. Pant-y-Mwyn, 2½ to 3; the additional 4000 shares now offered to the shareholders only are being fairly applied for, which speaks for itself as to their appreciation of the property. Rhyladun are quoted 11 to 11½.

Caron, 2 to 2½; good progress continues to be made at the mine. Frongoch, 1½ to 2; all operations going on well, and prospects improving. Grogwinion, 2½ to 3; no fresh news this week. Crosswood, 1 to 1½. Red Rock, 2 to 2½; the mine continues to look very promising. Wye Valley, 1½ to 2½; prospects here are steadily improving, and the bottom levels opening up well. West Wye Valley, 1 to 1½; fair progress making here, and mines looking well. Mawston, 1½ to 2; no fresh news. Hartington, 1½ to 2. St. Harmon, 1 to 2.

Mineral Corporation, 10 to 11; operations at the mines are reported to be going on as usual. A detailed report is expected next week.

Pateley Bridge, 5½ to 6; the 30 end east, on Rake vein, is in a strong lode, producing ore, but not enough to value, looking well. The sump winze, below this level, is worth 10 tons of ore per fathom. New machinery and all other operations looking well.

Subjoined are the closing quotations:—

Asheton, 3½ to 5½; Carn Brea, 24 to 26; Devon Great Consols, 1½ to 1½ per cent.; East Caradon, 1½ to 2½; East Van, 1 to 1½; Gwernymynydd, 4 to 4½; Great Laxey, 1½ to 2½; Hindon Down, 1½ to 3½; Headhills, 1½ to 2½; Marke Valley, 1½ to 2½; Pateley Bridge, 5½ to 6½; Roman Gravels, 7½ to 8½; Tankerville, 2½ to 3½; Timorot, 7½ to 9½; Van, 1½ to 1½; West Bassett, 4 to 5; Wheal Grenville, 3½ to 4½; Almada and Trito, 2 to 2½; Birdseye, 1½ to 2½; Blue Tent, 2 to 2½; Canada Gold, 2 to 2½; Chontales, 1½ to 3½; Colorado Eastern, 1½ to 1½; Don Pedro, 1½ to 2½; Eborhardt and Aurora, 3 to 3½; Flagstaff, 1½ to 2½; Frontino and Bolivia, 2 to 2½; Huatafilla, 2 to 2½; Kapanga, 1½ to 2½; New Querida, 2½ to 3½; Placerville, 2½ to 3½; Port Phillip, 3½ to 4½; Richmond Consolidated, 8 to 8½; St. John del Rey, 255 to 265; Sierra Buttes, 2 to 2½; United Mexican, 3½ to 4½.

At Redruth Ticketing, on Thursday, 1300 tons of copper ore were sold, realising 4540.19s. The particulars of the sale were—Average standard, 87½ lbs.; average produce, 7½; average price per ton, 37½ lbs.; quantity of fine copper, 92 tons 12½ cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
June 5 1879	282	85 16 0	7½	£3 11 6	9s 8½d.	10 0 0
19 1877	88 15 0	6½	3 4 0	9 6	47 8 0	
July 3 1879	87 1 0	7½	3 10 0	9 9½	49 0 0	

Compared with the last sale, the advance has been in the standard 1½, and in the price per ton of ore about 1s. 4d.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence & Co. (June 28)—Alum: Loose lump, 62. 2s. 6d. to 62. 5s.; ground, 62. 15s.—Arsenic: Best white powdered, 82. 15s.—Borax: Refined, English, 36s.—Copperas: Green, 60s. 0d.; white, 82. 15s.—Copper: Sulphate, 182. 5s. to 182. 10s.—Nitrate of Lead: 20s. 10s.—Saltpetre: Refined, English, 232. 15s. to 25s.—Sulphate of Zinc, 92. 0s. 0d.—Sulphur: Roll, 82. 10s.; flowers, 102. 10s.—Tin crystals, 5½d. per lb.—White Lead, 20s.—Barites: Carbonate, 5½.—Brimstone: Best thirds, 5½.—China-Clay, 38s.—Oxide of Zinc, 22. 10s.—Talo, 5½.—Umber, 70s.—Charcoal: Best stick, 4½d. per bushel; field burnt, 6d.—Globe Steam Boiler Powder, 16s. per cwt.—Naphtha: Miscible, 60 per cent., 4s. 4d.

* * * With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Treatment of Sulphides (J. S. Merry); Treatment of Copper Sulphides (C. King); Treatment of Cuprous Sulphides (W. Galbraith); Utilisation of Sulphides as Fuel (G. J. Brown); Sheffield Pig-iron and Copper Sulphides; Richmond Mining Company (R. M. Breton); the Rio Tinto Company; Ruby Mining Company; Flagstaff Silver Mining Company; The New Querida Company; Canadian Mining Notes—No. XXV; Ochre; Windmills for Milling Purposes; Is it Right to Pay Purchase Money for Mines? (A. Leon); The Copper Market and its Prospects (S. L. Bensusan); Stagnation in Mining; Practical Mining (R. Knapp); The Llanwrst District (R. Knapp); Mining in the Llanarmon District; the Science of Investment (R. Tredinnick). Meetings of Public Companies: Wheal Pever, Penstrithol Tin and Copper. Improvements in the Treatment of Peat; Patent Matters, &c.

THE COMSTOCK MINES.—Some interesting facts have recently transpired with reference to the early history of these mines—facts of especial interest to English shareholders. It appears that the first 30 tons of ore were taken from the Ophir Company, and when sent to San Francisco was literally an elephant on the hands of the company, as they had no means of ascertaining its value and working it. A few gentlemen from Germany showed themselves willing to smelt the ore. They had some assays, which gave at the rate of \$1000 to the ton, but the company got only \$1500 for ore worth \$5000. That was the beginning, in fact, of all mining on the Comstock lode. The company's stock consisted of 12 shares at \$300 each. The mine paid very largely, and had the same economy been practised which is now in vogue it would have proved even more valuable. This applies also to the early history of the Comstock mines. The gold was literally thrown away. Not more than 40 to 50 per cent. of the ore was realised. The mines were really exhausted and wasted before they learned how to work them. People are glad to get mines now which then were looked upon as worthless.

ALMADA AND TIRITO.—At the meeting, yesterday, of the shareholders the report of the directors, which was of an encouraging nature, was adopted. A report of the proceedings will appear in next week's *Mining Journal*.

GOLD MINING IN VICTORIA.—It was recently stated publicly that the Magdalena Quartz Company's shaft at Stawell, which is now sunk over 2100 ft., was getting very near the depth from the surface of the earth at which it would be found too hot for men to work, and the manager was requested to test the temperature at various depths in the shaft. The following is his report, which shows that there is very little difference between the temperature on the top and below:—"I have taken the temperature of the shaft. When the thermometer was close to the bottom the mercury stood at 82° Fahrenheit; when suspended 10 ft. from the bottom, at 80°; and in the chamber, at 78°; in the western drive, at 82° in the face; in the rise, where no air pipes carry air, at 84°. On the same afternoon the same glass showed the temperature inside the office on the surface of the ground to be 80°."

BWLCH UNITED.—The new 60-ft. wheel goes to work on the 10th inst., when an important deputation of the shareholders will visit the mine. From a section it appears that a second deposit of ore has been extensively wrought east of the great bunch which yielded 90000 a year profits to the Goginan shareholders. Again a bunch of ore of considerable value is wrought by the same company home close to the boundary. These facts prove that the Bwlch United is proven to be productive down to the deep adit level, 120 fms. from surface, hence large tracts of productive lode must necessarily exist in the Bwlch United.

LEAD ERA.—Captain J. A. Ede has forwarded to the office of the company a section of the underground workings, which shows the position and intersections of the various measures and flats traversing the concession. The lodes appear to be those of the Minera, and the strata, characteristics, and composition identical with the carboniferous formation overlying the mountain limestone at Minera, Westminster, and the other great producing and lasting mines of Flint and Denbighshire. Two or three months will effect great changes in the productive power of the mine, while the prospects seem to be second to few other enterprises in this interesting and highly prosperous district.

TURBINE WHEELS.

The reading of a sound practical memoir frequently leads one to study the subject dealt with, although otherwise it would be neglected by him, and this observation is particularly applicable with regard to the memoir on turbine wheels by Prof. TROWBRIDGE, of Columbia College, New York, which has just been reprinted* from Van Nostrand's Electric Engineering Magazine, the object of the memoir being to show the inapplicability of the theoretical investigations of the turbine wheel as given by Rankine, Weisbach, Bresse, and others to the modern constructions introduced by Boyden and Francis. The professor, after correcting an important error in former treatises on hydraulic motors, explained how the best practical results have been obtained by modern engineers who have discarded the formulas of the old standard works. He remarks that if Boyden and Francis had followed strictly the rules of construction laid down in the works alluded to they would have failed in their efforts to construct turbines giving any considerable increase of efficiency over the old Fourneyron and Fontaine or Jonval wheels of European design and construction. The theorem insisted on by

* "Turbine Wheels" (Van Nostrand's Science Series). By Prof. W. P. Trowbridge, Columbia College, New York. D. Van Nostrand, London; Trübner and Co.

the writers in question was that "the water must enter the wheel without shock," and hence the mathematical condition of the tangential velocity of the wheel where it receives the water, and the corresponding component of the velocity of the entering water must be equal, the effect of which is to prevent all impulsive effects of the entering water. In the old Fourneyron wheel the effects of the water in producing mechanical work were thus made to depend solely upon the subsequent deviation which it experienced in passing through the wheel.

It is to be noted, says Prof. Trowbridge, that both Rankine and Weisbach, in discussing the impulse and reaction of jets of water upon moving vane, makes no reservation in regard to the shock due to impulse, but demonstrate that water may impinge at any angle and with any relative velocity upon vanes, and by a suitable arrangement of curvature and velocities may have all the energy destroyed, and a perfect efficiency may be obtained. It is, he continues, difficult to understand why in the discussion of the turbine-wheel they insist on a different principle, and lay down a mechanical axiom at variance with these demonstrations. An unnecessary importance seems to have been attached to the idea that a stream of water to produce its best effect upon a vane or float must glide upon the latter in a tangential direction. He directs a very simple experiment to demonstrate this, which requires no other apparatus than a goblet and a goose-necked tube. In conclusion, Prof. Trowbridge states that the general principles to be kept in view for all buckets are—That the channels between the buckets shall not have abrupt changes in direction; that they shall be as short as possible; that the curvature of the buckets shall be continuous; that the discharging edges of the buckets shall have a uniform discharging angle; and that the cross section of the channels between the buckets shall be uniform throughout. It is especially important that the water should leave the guide-blades and enter the wheel in clear transparent streams without contraction, in order that these streams may continue unbroken through the wheel to the point of discharge. The value of the information given by Prof. Trowbridge cannot be over-estimated, and the memoir should be carefully studied by every engineering student.

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TO MR. JEREMIAH THOMAS.

I, JOSEPH PARSONS BIDDLE, of MERTHYR TYDFIL, in the county of Glamorgan, Iron Founder, do hereby admit and acknowledge that I have INFRINGED upon your PATENT for the CONSTRUCTION of a SMALL COAL WEIGHING MACHINE, technically known as "Billy Fair Play," and hereby express my regret, and apologise to you for so doing, and also consent and agree that you are at liberty to publish this APOLOGY in such manner, in such papers, and for such period as you may think proper.

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By E. R. GABOTT.

MINING JOURNAL Office, 26, Fleet-street, E.C.

CAPTAIN A. B. SALOM F. FRANCIS, MINING ENGINEER,

GOGINAN, R.S.O., ABERYSTWITH, CARDIGANSHIRE.

Goginan, April 2.—The present time offers an opportunity for capitalists such as, in my opinion, that is not likely to occur again for very many a long year. To those who have acted on my advice since the commencement of the present year a rise has occurred in prices of shares equal to fully 60 per cent., and to those inclined to invest there are really probabilities that every £1 now placed will realise ten times the amount before this year closes.

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AUSTRALIAN TIN—PRIZE MEDAL, 1877.

THE UNDERSIGNED is PREPARED to EXECUTE ORDERS for the CELEBRATED

Notices to Correspondents.

Many inconveniences having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be sold on receipt; it then forms an accumulating useful work of reference.

Received.—"Shareholder" (Blue Hills)—"W. R." (Bristol): Next week—"Shareholder" (Hultafell)—"H. B."—"Doyle's Tin Mining in Larut"—"Shareholder" (New Zealand Kapanga)—"W. S." (Newport)—"L. S." (York)—"D. C. Davies (Oswestry): The latter on Slate Quarries in Germany shall appear next week—"J. W. S." (Mining in Cork): Next week—"E. V." (Oswestry)—"Cornishman in North Wales"—"Shareholder" (Richmond)—"O. D."

THE MINING JOURNAL.
Railway and Commercial Gazette.

LONDON, JULY 5, 1879.

PUMPING MACHINERY FOR MINES.

Of late years more than ordinary attention has been devoted to the best means of draining mines, so that the mode of pumping water from them may be said to have undergone quite a revolution. At many places, however, the old and ponderous appliances are still in operation, but these, no doubt, will give way before modern inventions, having for their object greater power, with less cost in the first instance, and requiring less labour and fuel. At some few mines the water is got out in a most primitive fashion even now, the process being slow, uncertain, and laborious. Even in France, where machinery in mining operations is looked upon with fully as much favour as it is in England, and where the opening out of mineral fields has been far more costly than in this country, there has at several places been no attempt at introducing pumps. For instance, at the Vieux Conde Mines, in the Nord, 500 tons of water are drawn daily in large iron buckets, the depth of the shaft being 165 yards; and at another one the drainage is effected by water tubs fixed on wheels and run into cages. But at others there are direct acting and other engines, with pumps of the newest construction, the latter, at the Montigny Mine, in the same district, being of wrought-iron 3 ft. 7 in. in diameter; the working barrel 40 $\frac{1}{2}$ in. in diameter, in two lengths of 10 ft. each; and the lift, 44 yards long, at seven strokes per minute, with a 10-ft. stroke; one pump lifting 3500 gallons of water per minute. There were three pumps altogether, the engine driving them being a direct-acting one, the cylinder being 60 in. in diameter, with 10-ft. stroke. As to English pumps, it would be invidious to particularise or go into the merits of them, for all have done good work; but, of course, some have peculiarities that others have not. The Cameron "Special" has been extensively adopted, and is being successfully worked at a large number of mines in various parts of the kingdom. There is also the Ommany and Tatham, and many others that find more or less favour with mining engineers. In one instance we find the steam used in driving the pumps to pass into the suction-pipes instead of going into the air. HOLMAN's pump is on a somewhat similar principle, but he divides the applied steam more minutely. We have seen the special direct-acting pumping-engine, which Mr. HOLMAN appears to have brought to perfection, at work at many places, and it certainly does its work most effectually. But to digress only for a little, we have it on good authority that the steam-engine was originally a steam-pump.

The first engine of WATT were steam pumps, and he knew the advantages of using steam of a high pressure expansively. NEWCOMEN, who long preceded WATT, was about the first to drain a mine by engine-power. This was at Griff, in Warwickshire, where 500 horses were employed for the purpose. Whilst successfully engaged in draining a mine near Wolverhampton along with a Mr. PORTER, by accident he found out that he could make the engine go faster by applying the cold water inside the cylinder. Whilst the engine was working it was found all at once to go much faster, and upon searching for the cause they found a hole in the cylinder, which admitted the cold water from the outside casing, and this, procuring a quicker vacuum, caused more strokes per minute. At the same time it was also found out by accident that the engine could be made self-acting by having a rod connected with the beam to open and shut the valves. About the same time BRINDLEY added the "water feed" for the boiler, which he made self-acting by means of a float in the boiler communicating with a valve in the feed pipe, so regulating the supply of water. SMEATON, who followed, made several improvements, more especially with regard to that part which bears his name and regulates the strokes of the engines. But these instances of improvement, and the many that have since followed them, show that the construction of the steam-engine was not the work of one man or of one mind, but was "thought out" in detail by many persons. So far back, indeed, as 1663, the expansive power of steam was known to the Marquis of WORCESTER, as is evidenced by his work—"A History of the Names and Scantlings of Inventions"—for he says that "his waterwork is by many years' experience and labor so advantageously contrived that a child's force bringeth up 100 ft. high an incredible quantity of water, even 2 ft. diameter, so naturally that the work will not be heard into the next room, and with so great ease and geometrical symmetry, though it work day and night, from one end of the year to the other, it will not require 40s. reparation to the whole engine nor hinder one day's work, and not only with little charge to drain all sorts of mines and furnish boilers with water, though never so high seated." It will be seen that the effectual draining of mines was one of the principal objects of the earliest inventors, and with the great improvements of WATT and STEPHENSON it is evident that the same desire actuates our engineers at the present time, and this brings us back again to the pumping appliances now adopted at our mines. Foremost amongst these is the Tangye and Holman direct-acting compound pumping engine, which has met with great success, if the number in use may be taken as the guide, and it is certainly the best one to go by. The engine consists of a steam cylinder and a water cylinder fitted with a suitable piston, the steam piston being connected with the water piston by means of a common piston rod, to which they are secured, one at either end, with no other fitting or connection. The valve mechanism of the steam cylinder consists of four pieces of iron, without a screw, pin, or joint to either, two small plug reversing valves (one placed in each cylinder head), a slide valve, and a cast or malleable iron plunger or carrier to move the slide (a flat-ground face valve) backward and forward so as to permit ingress and egress of steam to and from either side of the steam piston alternately in the ordinary way. The pumps are double-acting, and fitted with HOLMAN's patent valves and seats, and, having no central seatings, wings, arms, or grids to obstruct the passage of the water, contribute considerably to the durability and good working of that part of the machine. The power of the Tangye and Holman pump has been illustrated at one of Messrs. PEASE's collieries at Bishop Auckland. An engine was contracted for having a 26-in. diameter steam cylinder with a 6-ft. stroke, the stipulation being that it should be able to raise 120 gallons per minute 1040 ft. high in a single lift, and this it accomplished with as much ease as if the load was only delivered 100 ft. high. Economy of space and cost, durability and simplicity, and the power of drawing water from great depths are amongst the leading characteristics of the Tangye-Holman pumping-engine.

Mr. HODGSON's pumping-engine is not so well known, but in it the whole of the steam is thrown into the suction pipe, and it is contended that such has the effect of increasing the power of the engine. Messrs. HATHORN, DAVIS, CAMPBELL and DAVEY, of the Sun Iron-works, Leeds, are the makers of what is known as differential pumping-engines, which have been made up to 400 horse power. It is claimed for this engine that the first cost is 50 per cent. less than the Cornish engine; that it gives a higher duty under similar conditions of working; requires less costly pitwork; will give a high

duty and work with a high degree of expansion under conditions of working which will not admit of any appreciable amount of expansion in the Cornish engine; saves the pumpwork from the heavy shocks and breakages arising from the pumps taking air; and is a simpler machine, has fewer parts, every detail is on one floor, and more readily accessible. Mr. DAVEY of the firm named, has designed a hydraulic pumping-engine, which appears to have some special advantages in certain circumstances. In deep workings in mines these engines could be advantageously used to raise water to the main pumping-engines, the motive power being supplied from the rising main of the main engine. In hilly districts water drawn from a high level could be conducted by pipes into the mines, and then used to raise a greater quantity of water to the surface, and so obviating the necessity for steam power, as pistons and slide valve wear rapidly away with dirty water; but this is not the case with plungers. In the hydraulic pumping-engine there are no pistons, the power being applied and the work entirely done with plungers. The power plungers are stationary, and are made to serve as pipes to convey the valve-boxes (to which they are fixed) to the inside of the pump plungers, the latter forming the power cylinders, being connected to each other by side rods passing outside the valve-box, and by this means the forcing stroke of one pump-plunger causes the suction stroke of the other, and vice versa. The valves instead of being actuated by metallic connections are worked under water pressure by means of a small subsidiary valve actuated on tappets from the engines at the end of the stroke, so that a full and free water way is given, realising the greatest possible useful effect. Mr. DAVEY for draining pits during sinking operations considers that hydraulic pressure can be advantageously used. Instead of using wooden spears inside the pump to transmit the power of the engines what is termed a water spear is employed in a pipe on the outside of the pump, the working part of which is attached to a capstan engine by means of a wire rope in such a manner that the rope remains attached whilst the pump is at work, so that should the bucket or clack require removal for re-gearing it is only necessary to throw the capstan into gear, and hoist the working parts to the surface. A forcing engine is employed to pump water into the pressure pipe, to which an accumulator is attached for the purpose of maintaining a constant force. There is a valve-box at the top of the pit from which the pressure from the accumulator is alternately applied through and released from the pressure pipe, causing the plunger and bucket to ascend and descend in the working barrel. The *modus operandi* of these hydraulic engines appear to be simple and effectual, and are certainly worthy of the consideration of those engaged in sinking operations, and in the draining of the dip workings of mines, &c. The Cornish pumping-engine is too well known to require more than a word or two from us. It requires a large building, and for deep mines requires various appliances, such as connecting rods, guides, plungers, &c. It has done wonders in opening out mines and making known the mineral wealth lying at great depths underground, but it was when there was no opposition to speak of. Things have greatly changed during the last decade or two, and old systems are being gradually uprooted by the march of science and the progress of engineering skill. The greatest economy, too, is now more than ever necessary in the carrying out of mining operations, and all inventions calculated to lessen the cost of working must be taken advantage of by mineowners; hence it is that we have thought the time opportune for directing attention to pumping machinery.

THE COPPER TRADE.

During the quarter ending June 30 the quantity of copper ore, the produce of Cornwall and Devonshire, sold at the Cornish Ticketing, was 10,675 tons, which contained 726 tons 16 cwts. of fine copper, and realised 34,260. 16s., being equal to an average of 32. 4s. 2d. per ton of ore, and 47. 2s. 9d. per ton of copper in the ore. During the same period the British, colonial, and foreign ores sold at Swansea amounted to 4113 tons, which contained 521 tons 6 cwts. of fine copper, and realised 23,261. 6s. 6d., being equal to an average of 62. 17s. 5d. per ton of ore, and 54. 4s. 2d. per ton of copper in the ore. The average produce of the ore sold at the Cornish Ticketings was 63 per cent., whilst that sold at Swansea gave an average produce of 12. 11-16 per cent. From this it will be seen that the aggregate sales by ticket were 14,788 tons of ore, containing 1248 tons 2 cwts. of fine copper, and realising 62,522. 2s. 6d. The subjoined is a summary of the periodical sales at the Cornish and Swansea Ticketings respectively. The ores sold at the Cornish Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
Apr. 3.	£ 84 8 0	7 1/2	£ 51 11 0	9s. 6d.	1,140	881. 16s.	£ 4,045 0 6
17.	90 7 0	6 1/2	3 17 0	0 3	2,535	157 8	7,247 8 6
May 1.	84 10 0	7 1/2	3 7 0	9 3/4	1,444	104 2	4,827 6 0
22.	88 8 0	6 1/2	3 3 0	9 6	2,117	141 9	6,679 10 0
June 5.	85 16 0	7 1/2	3 11 6	9 8 1/2	1,232	94 7	4,671 5 0
19.	88 15 0	6 1/2	3 4 0	9 6	2,157	144 9	6,890 6 0
Total for the quarter							
					10,675	726 16	£ 34,260 16 0
Quarter ending March, 1879							
					10,593	731 16	£ 34,029 19 0
Quarter ending December, 1878							
					12,552	866 17	£ 41,450 8 6
Quarter ending September, 1878							
					11,463	804 8	£ 39,397 11 6
Total for the year							
					44,788	3129 17	£ 148,147 8 0
Showing a quarterly average of							
					11,197	782 9	37,038 17 0
Corresponding quarter June, 1878							
					11,745	859 9	41,092 12 0

The ores sold at the Swansea Ticketings were—

Date.	Standard.	Prod.	Price.	Per unit.	Tons.	Fine cop.	Amount.
April 22	£ 77 13 2 18	2 1/2	£ 7 2 3	10s. 10 1/4d.	1,227	1607. 6s.	£ 8,728 6 0
June 3.	77 2 10.15 1.15	8 5 2	10 11	1,093	165 17	9,070 6 6	
24.	77 12 10 10 1/2	5 17 0	10 8	1,788	195 3	10,462 14 0	
Total for the quarter							
					4,113	521 6	£ 22,261 6 6
Quarter ending March, 1879							
					5,158	559 15	28,634 8 0
Quarter ending December, 1878							
					4,803	512 12	26,721 10 0
Quarter ending September, 1878							
					8,600	702 18	35,163 5 6
Total for the year							
					22,679	2296 11	£ 118,783 10 6
Showing a quarterly average of							
					5,670	574 3	29,695 17 6
Corresponding quarter, June, 1878							
					9,185	777 6	41,755 14 6

OUR RAILWAY IRON IN SOUTH AMERICA.

We think it of considerable interest and importance to note the success with which we still hold our own as regards our shipments of railway iron to South America. The Americans have often cast sheep's eyes at the markets of Brazil, Peru, and Chili; but they cannot be said to have done us much harm in those quarters at present. Brazil has been, indeed, a better customer for our railway material this year; and if the consumption of Peru and Chili has rather declined, this result is attributable more to the financial difficulties of the Peruvian and the Chilean Governments than to any other cause. The shipments of our railway iron to Brazil, Peru, and Chili have moved on as follows during the first five months of the last three years:—

	1877.	1878.	1879.
Brazil.....	Tons 9,447	8,005	16,521
Peru.....	31	2,040	1,531
Chili.....	578	345	605

Total 10,056 10,390 18,657

Thus the demand for our rails and accessories on South American account has been gradually increasing

work in the laboratory, and one of them, Werdermann's, has been tested in outdoor experiments equivalent to street lighting. It is manifest from a full survey of these facts that the gas companies have been driven from every stronghold except that of purely domestic lighting, and that they may be driven from that before the year 1879 closes.

REPORT FROM CORNWALL.

July 3.—Though the fall in the tin standards announced last week can hardly be said to have been anticipated, coming when it did, it has had very little influence upon the manner in which the future of the tin trade is regarded in the county, where the mere fluctuations of the London market, especially at the present moment, are not considered as of any very grave importance. By this time, at any rate, it is commonly recognised here that we have now mainly to look to a general revival in trade, the special depressing causes of our own industry being on the high road to removal. Meantime our own direst conditions cannot be regarded as otherwise than full of hope, when at meeting after meeting such favourable reports of the condition of the mines are presented; when a young concern like Pevor can in spite of everything declare such handsome dividends, with a West Pevor on the high road to follow suit; and when we see such enormous strides made in mining practice as is evidenced by the construction of such works in the new skiproad at Dolcoath, these are all facts which cannot be gainsaid, and which are full of the weightiest promise for the future.

Dolcoath is now, of course, the deepest mine in the county, and it is stated that the new skiproad will carry nearly 2 tons of stuff—in point of fact, about 35 cwt.—and will bring up nearly three loads an hour—22 in the eight hours, or nearly 40 tons in that period. The double skip at East Pool, which loads 1 ton and runs eight times an hour, will bring up 64 tons in the eight hours, but then there is a very great difference between the depths of the two mines. There seems to be no doubt that skiproads have solved what was regarded as one of the most difficult problems in the conduct of mining enterprise here, drawing the stuff cheaply and efficiently as the mines get deeper and deeper.

Capt. Southey, too, it seems, has effected an improvement in tin dressing by the modification of the jigger, which is credited with a saving of 20 to 30 per cent. If these results equal anticipations this would convert almost every tin mine now working in the county into a dividend one, even at present prices, and there would be very few indeed that would not pay cost. There is no question at all that the dressing of tin is susceptible of great improvement, even in the wet way, though our idea rather is that by-and-bye dry processes will be introduced far more speedy, economical, and productive. This would effect a large saving, too, in the matter of water rates, which formed one of the topics of discussion at Cook's Kitchen, and which we are glad to learn Mr. Basset, with his usual consideration and liberality, has expressed his willingness to reduce. Water rates do not stand in the same position precisely as dues, but they form in many cases a very heavy item of expenditure.

An interesting fact, and a tribute, though late, to the memory and genius of one of England's greatest engineers, we are glad to be enabled to state, on the highest authority, that Trevithick's famous engine, shown in the comparative museum at the Kilburn Exhibition of the Royal Agricultural Society this week, is about to be permanently deposited at South Kensington. Among the other things that Trevethick did he was the very first to apply steam to agricultural purposes, and this, the first agricultural steam engine, was made by him in 1811 for Sir Christopher Hawkins, of Trewithen. At Trewithen it has been ever since in regular work up to the present day; now it has been sent to Kilburn by Mr. Trantham as the parent agricultural steam-engine, and after its nearly threescars years and ten it is to retire from its labours, and take its place as one of the monuments of English (now Cornish) industry and invention.

TRADE OF THE TYNE AND WEAR.

July 3.—The Coal Trade has to some extent been interfered with by the usual holidays, but the shipment of coal has been considerable, although scarcely up to the usual average, at Tyne Docks and other important shipping places. There is a good supply of steam and sailing vessels, and the shipments of gas coal and coke continue large. In Northumberland orders at the best steam coal works still remain plentiful, but at others they are somewhat limited, and some pits have been idle in consequence. It is gratifying to note, however, that the present state of this industry is considerably better than it was at the corresponding period of last year. In Durham generally fair average time has been made at most of the works during the past week, and if this continues, and the house coal trade further improves, there will not be much to complain of, considering the general state of business. The men at many of the works complain of the low wages earned. It is worthy of note that at some of the works the masters wish the pits to be worked twelve days per fortnight, but the men refuse to work more than eleven days.

The Iron Trade has shown no improvement during the past week, as there has been a very limited demand for pig-iron, and prices remain at a low ebb. The highest price asked for No. 1 is 37s., and this it is difficult to realise, but a considerable amount of iron is going into consumption, and deliveries for shipment have also been very considerable. The reports as to the success of the new process for steel making continue satisfactory. The directors of Bolckow, Vaughan, and Co. report that they have no doubt whatever of the entire success of the process, and refer to the fact that some excellent steel rails have already been made by it. This official announcement, coupled with the fact that so large a work as the new Forth bridge is to be constructed wholly of steel, has tended to give a tone of cheerfulness to the iron and coke trades. The iron shipbuilding business still continues very brisk, and it is evident that the carrying trade of the world is destined to be done by steamers. Sailing vessels are becoming of little value, and many large ships of this class are now laid up as useless. The general position of the engine and iron works is far from satisfactory; there are, however, some exceptions, as the Jarrow Works, the Elswick Engine and Iron Works, and a few others. At Elswick a large stock of pig-iron is held, and an enormous stock of iron ore is also held. This has chiefly been imported from Spain, and cargoes of the ore are still delivered here weekly.

The large vessel W. D. Lawrence loaded in the Tyne on Monday 3784 tons of Bedlington coal, drawing 26 ft. 6 in. of water. She is bound to Bombay for the P. and O. Company. This vessel was loaded in three days, and on the previous voyage it was loaded at Cardiff, the loading occupying eight days.

The Chemical Trade has been strong during the past week, shipments having been pretty large. Prices are stiff, and as little stock is held an increased demand which has occurred for some time, and is likely to continue, must shortly place this trade in a better position. The confidence in the trade has certainly fallen to a low ebb, as is shown by the present position of the Tyne Chemical Company, the largest chemical works in the world. The value of those works in the market at present does not exceed one-eighth of what it did a few years ago. Should the present demand for those goods continue, which is almost certain, the value, however, must largely increase shortly. There is a good demand at present both for prompt and forward shipment, and, as is noticed above, stocks are very low.

The attendance on 'Change at Middlesbrough, on Tuesday, was very good, but business was very restricted, as buyers will not purchase in a falling market. Prices were not so strong, and though some of the makers were asking more they generally accept about 33s. No. 3, and 32s. to 32s. 3d. No. 4 forge net. Prices, however, are largely nominal. Messrs. Connal's stocks were 80,300 tons, an increase of 600 tons on last week. The dull state of trade was exhibited by the fact that Hunwick Colliery was offered for sale, but elicited no bid. The shipments of iron have been rather better to the Continent during the past week, between 15,000 and 18,000 tons having been sent to foreign and coastwise ports. The quantity sent to Scotland has been smaller, being only 4310 tons. The continuous decline of Scotch prices tells against Cleveland iron imports. The Scotch market, like that of Cleveland, is also oppressed by

heavy stocks. A considerable decline in Cleveland stocks is expected from last month when the returns are made up, which will be in the course of two or three days. Considerable satisfaction has been caused by a renewal of the assurance of the success of the Thomas Gilchrist steel-making process at Bolckow and Vaughan's Works at Eston, more especially as we learn that steel rails equal to any from hematite ore have been produced from Cleveland pig. There is still a vague kind of uneasiness prevalent lest all the financial difficulties of the district have not been overcome, which imparts more or less of uncertainty into the transactions of trade. There is no appearance of improvement in any direction. The finished iron trade is about as low as it can be. The stoppage of works lately has somewhat improved the chances of those which continue at work. There is a little enquiry for plates and bars, but at low prices. Bars are 4l. 15s., and plates 4l. 17s. 6d. to 5l. less 2d per cent. The steel trade continues pretty active, but there is not much fresh demand. The failure of two iron merchants is announced. In one case the liabilities are set down at 60,000/., and in the other they are stated to be small, and to be confined to very few parties.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

July 3.—The demand for furnace and forge coal is very restricted, and, unfortunately, there are no indications that any alteration is likely to take place for the better yet awhile. The pits are keeping on at much within their full rate of production, and prices are unsatisfactory, possessing, as they do, a downward tendency rather than otherwise. Pig-iron makers are not meeting with an increase of business either as regards best or common sorts. Stocks continue heavy, not alone at the furnaces but also in the hands of buyers. In consequence of not being able to get rid of the pigs which have been accumulating at their works Messrs. J. and T. Williams, of Parkfield, near Wolverhampton, have determined upon blowing-out their blast-furnace. On the other hand, it is announced that Messrs. N. and W. Grazebrook, of Netherton, near Dudley, are making preparations to re-light one of their furnaces, which has been standing for a considerable time, but I have authority for denying the statement. The finished ironmakers are unable to find more employment for their operatives, as buyers of plates, sheets, bars, angles, and other descriptions have generally suspended their purchases till after Quarter-day.

Satisfaction is everywhere expressed that the guarantee fund for keeping the pumps at work in the Tipton district has now reached over 21,000/.. Some of the most liberal guarantors are not directly concerned with the iron and coal trades, but are engaged in other manufactures. Hence they are worthy of much commendation, and it would be matter for intense regret if, through lack of interest on the part of iron and coal masters themselves, the requisite 30,000/.. or 40,000/.. should not be forthcoming, as the importance of the question involved can hardly be overrated. An interview has just been arranged between Sir Horace St. Paul and officials of the commissioners, with a view to his becoming a guarantor, and similar negotiations are also pending with other employers in the district.

At a monthly meeting of the Commissioners, on Wednesday, in Wolverhampton, a resolution was passed requiring every occupier of a mine within the drainage area to make a return of the number of acres occupied, and of the tonnage of mineral raised by him during one half-year ending June 30.

The miners in the Tamworth district who came out on strike are still resisting their masters' terms. They express their determination not to resume upon any reduction.

The associated coalowners of the Bedworth district have this week been laying before Mr. James Mottram, Q.C., judge of the Birmingham County Court, their claim for a reduction of 10 per cent. in wages. They contend that the wages of the pickmen or getters (which were 3s. 8d. per day of 7½ hours before the strike) are greater than they were in 1870, compared with the hours worked, and that the daymen are practically receiving 30 per cent. more wages for the work done than they did in that year. Both sides have agreed to take the figures of 1870 as fair standards of comparison. On the other hand, the selling price of coal is 20 per cent. less now than it was in 1870. The workmen's case is that they cannot live if there should be any reduction, for their average earnings are already barely sufficient to support their families.

NORTH STAFFORDSHIRE IRON AND COAL TRADES.—The Quarterly Meeting of the North Staffordshire Iron and Coal Masters' Association was held on Thursday, Mr. Wragge in the chair. The reports as to the condition of trade showed that the quiet which has so long marked it continues to exist, with no prospect of any early improvement. The dullness was stated to extend to every department, and very little business was done at the meeting, transactions generally being deferred to the Birmingham quarterly meeting. The position of the trade was discussed at considerable length, more particularly with reference to the low prices prevailing and the relative rate of wages paid. Opinions were freely expressed that a reduction of wages was essential to meet in some degree the depression in prices. In several quarters, however, a wish was expressed that a general declared reduction might be avoided, and the emergency tided over by arrangements between each firm and their own men for some modifications either of wages or hours of work, or both. The North Staffordshire Railway Bill, as it left the House of Commons, was laid upon the table, and attention was called to the unreasonable powers to charge for traffic proposed to be taken by the company under the 2d clause.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

July 3.—The depression which has so long prevailed in the lead mining districts of Derbyshire has led to the initiation of a movement on the part of some of the sub-lessees to seek for some relief at the hands of the Duke of Devonshire, who is expected to be at Chatsworth in the course of a few days. His Grace holding under her Majesty the Queen, in right of her Duchy of Lancaster, as lessor, is entitled to the mineral duties in the manor or liberties of Ashford, Hartington, Peak Forest, and Tideswell, and with others to the duties in the manors of Crich, Stony Middleton, and Eyam. The production of ore for some considerable time past has been very far below what it was formerly, whilst the wages of the miners is not more than those paid to ordinary labourers. It is proposed to ask the Duke to lower the duties for the benefit of the employers and workmen, and it is not unlikely that what they desire will be conceded. In the coal mining districts things are getting worse, as the trade has fallen off, and several collieries are now entirely standing. This is the case at Unstone, whilst Eckington, in addition to the number of men that have been on strike for some time, a good many more will be added to the ranks of the unemployed, for the Messrs. Black of the Renishaw Colliery gave their men notice that they intended closing the pit until things mended. The notice expires to-day, and it is not easy to see how such a large number of men are to be maintained, seeing that those at work are not earning much, most of them being on short time. In house coal there has been a decline in the business doing with London, as well as with all other places connected with the district by railway. Prices, too, have reached a point that admits of no thought about profit, and the question is how long can this state of things continue? The masters connected with the association have loyally adhered to the award of the umpire, although it was based on grounds such as no other umpire ever took into consideration—how much should miner receive to maintain himself and family. We have no doubt it will be the last—as it has been the first—time that Mr. Ellison has been called upon to decide between masters and workmen. Colliery owners still complain of the little doing in steam coal, considering that this is the busiest part of the year. But the trade for this description of coal is nearly all inland, and what is wanted is the supplying of steam vessels in some of our large ports, and this does not appear to be looked for or tried for. The local consumption for the furnaces is not equal to what it was a year or two since, for the output of pig is considerably below what it was not so very long since. A good business continues to

be done at the Bessemer Works, and rails appear to be in as good request as ever, although no doubt owing to the competitive prices having come down considerably.

In Sheffield trade is dull, and in some branches there is even less doing than there was a few weeks since. So many failures, too, happening at the same time has also had a most depressing effect, and the turning of the half-year is looked forward to with some anxiety. The plate mills have not been running quite so well of late, but there has been a steady business done in tyres, axles, and similar material. At the Bessemer works, both in the town and neighbourhood, work continues good, all things considered, whilst just now a large quantity of telegraph cable wire is being turned out. Edge tools, sheep shears, and light implements are in fair request for exportation, but the cutlery branches have become considerably quieter. Australia is still a good customer to us, but orders from America of late have come sparingly to hand.

At the collieries in South Yorkshire business has been very quiet, and at several of them men have either left work in consequence of the closing of the works or are under notice to leave. Meetings have been held during the week, at which the men have been addressed by Mr. Lloyd Jones and others. The wages question has been kept rather in the background, and the speakers have paid a great deal more attention to the rates charged by the various railway companies than to anything else. The question is certainly a most important one, and if a reduction can be obtained it will certainly be of great benefit to both masters and men. The colliery owners have frequently urged upon the directors of the Great Northern the necessity for a reduction of the rate to London, but they have not been successful, and it is to be feared that the representations of the working miners will fare no better. However, they are in the right track, whether they succeed or not. What is required is a rate for coal such as will allow of inland colliery owners being placed in a position in which they will be better able to compete with those sending by water. The present time, however, is most opportune for the colliery proprietors taking into consideration the important question of sending coal to London by water instead of by railway. It has already been mooted, and now wants pushing forward energetically. A lower rate is also required to Grimsby, seeing that our exports from there to the North of Europe are far below what they ought to be, considering the position of the port with respect to the Baltic.

REPORT FROM THE FOREST OF DEAN.

July 3.—As we intimated last week might be the case, the Chairman of the Great Western Iron Company has consented to withdraw his action for damages against Mr. Kirkwood, that gentleman having made a public apology and engaged to pay expenses thus incurred, and further engages not to annoy or molest the said Chairman, abandoning all remedies except what he may have at law. Several times during the construction of the Severn Bridge the spring tides (in rough weather) have damaged the staging, in some instances carrying much of it away, which circumstances have occasioned much extra work and delay. A mishap of the kind occurred recently to the staging for the last span, which was rectified, and the work resumed expeditiously. It is now complete and the flooring in progress, the rivetting being pushed on with energy. People can now cross the bridge from shore to shore, and it is hoped that in a month's time or a little more the bridge will be practically complete. The Great Western Company has now withdrawn all opposition to the Amalgamation Bill now before Parliament. But it is uncertain what the Great Western Railway Company intend doing with its proposed short link lines in the vicinity, as nothing is being done with a view to their construction—at all events, nothing publicly visible. The Whimsey and Mitcheldean road line is only progressing very slowly, a very few men only being employed. It is true trade is remarkably dull, but were trade to revive the short links and lines alluded to, if constructed, would give valuable additional facilities to the district both for produce and passenger traffic. The coal and iron trades are without improvement—rather, in fact, going from bad to worse; there is a decreasing output of coal and iron ore, and therefore employment is becoming slacker and slacker, the outcome being to the proprietors' limited returns, and increasing poverty among the working classes of the Forest. Still, men are hopeful of improvement in time, and evermore their thoughts recur to the bridge now nearly completed over the Severn as being likely to bring some good at least.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

July 2.—The Quinta Colliery and Brickworks has gone into voluntary liquidation, Mr. Williams, the secretary of the company, having been appointed liquidator. If this act should lead to the stoppage of the works, which I hope it will not, every colliery on the Shropshire side of the River Ceiriog will be closed. The depressed state of colliery enterprise received a further illustration in Tokenhouse Yard last week, when the Hafod-y-Bwsch Colliery, belonging to the Ruabon Coal Company, was offered for sale. The output of the colliery was given at 120,000 tons a year, which the auctioneer said would at a profit of 6d. per ton give an annual income of 3000/., so that he ought to get 50,000/.. for it. But he did not. No one responded to the invitation to commence the biddings at 30,000/.. or 20,000/..; indeed, no offer was made for it. It would seem likely, generally speaking, that by a natural process of closing of unprofitable or poorly-paying collieries the output of coal will soon become limited enough without the intervention of colliers' Unions.

The great Traction Engine case has advanced another stage. The Chairman of the Shropshire Quarter Sessions acting in accord, as he thinks, with Captain Galton's report has confirmed the fine of 500/.. on Mr. Savin imposed by the magistrates, and condemned him in costs. By Captain Galton's report, as I understand it, the engines, wagons and weights carried complied with the Act of Parliament; but the ruling of the Chairman was that as the road was not constructed sufficiently well to carry them three-fifths of the cost of reconstruction must be charged to the engines as their proportion of the traffic. A case was granted for the Court of Queen's Bench, to which an appeal will be made. I may be allowed to observe that in my opinion this decision reverses the result of recent legislation. By this legislation the cost of making and repairing roads has been removed from the users of such roads as their exclusive burden, and spread over a whole district. By the Salopian decision the burden has been thrown back upon the users of the roads, with this difference—the carrier of three-fifths of the traffic of the district must pay his share alone, legal costs included, while the cost of the other two-fifths is spread over the ratepayers of the whole district, of which the said carrier being a ratepayer, and a large ratepayer too, must also pay his proportion. I am not lawyer enough to see the legality of such a ruling, but the decision hardly squares with one's notion of justice. But the case is not ended.

The Marquis of Londonderry obtained an injunction, with costs, some time ago against the Rhosydol Lead Mining Company, in Cardiganshire, restraining them from polluting the waters of the River Dovey. The restraint was unnecessary, as the company failed, and, of course, could not pay the costs. But Messrs. Gurwood and Green, two of the officials of the company, the latter gentleman being the engineer, appear to be men of means, so the plaintiff applied to Mr. Vice-Chancellor Hall last week to include them in the list of defendants. This was allowed on condition that plaintiff pays the costs.

The question of the pollution of rivers by mines may be carried too far, and where there is an effort to make the effluent water as pure as is practical by ordinary means, landowners, especially those who derive good income from lead mines, should be careful not to strain the law too much. In mining, as in farming, it is this subjection of industry to sport within a limited and thickly populated country like Britain that is one of the causes that are driving our men and our trade to other countries.

A new industry is growing in connection with limestone quarrying in my district. There are in most of the quarries in the pale-coloured limestone beds portions known as "rotten rock," in which

there is less carbonate of lime and more alumina and silica than in the ordinary limestone, and which unites these portions for making agricultural lime, or being used for fluxing stone purposes. In the quarries of Savin and Co. this "rotten rock" is now being utilised for the manufacture of mortar and hydraulic cement. A small works by way of beginning has been established at Oswestry, which is fully employed in the manufacture. The lime trade generally is almost as bad as it can be. The same remark is true of the iron trade, for with the exception of the Tfrwd Ironworks, there is not a furnace to be seen in blast in the whole district.

Rumours are rife that the Central Van Lead Mine is looking up. An eminent mining authority from Cornwall has been inspecting it, and probably we shall soon have his report.

The claims of Wales to a share of Government recognition and help in her endeavours after higher education were fairly put in the House of Commons last night; and, spite of the attempts of Lord G. Hamilton to make fun out of the language of the Principality, and the recent disagreement at the University College, Aberystwith, the justice of these claims was last night generally acknowledged. Perhaps if we kicked up a few rows like the Irish we should the more command the respect of belligerent members. We will, however, wait our time peacefully. In the meantime, I hope every effort will be made to preserve the college at Aberystwith from the least grounds for charging it with sectarianism.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

July 3.—The Taff Vale Railway Bill has now passed the House of Lords. The freighters offered a good deal of opposition, but the Bill has got through substantially as its promoters desired.

The inquest as to the Cwmavon Colliery accident, by which six men were killed, has been concluded. It will be remembered that the rope attached to the cage broke, and six men were dashed to the bottom of the pit and killed. Mr. Wales, her Majesty's Inspector, said the rope ought to have been changed years ago. Gross carelessness had existed on the part of the mechanical engineer and bank-man, as there was no difficulty in clearing the rope and finding out the state of it. In their verdict the jury censured the officials.

The Iron Trade shows no marks of improvement, and clearances have been rather small during the week, the principal one going to Brazil. The demand for railway iron is, as usual, very dull. Not so the steel rail department, if Rhymney be taken as a criterion of the other works, but this, unfortunately, is not so. Rhymney steel-works last week turned out no less than 1600 tons. In other instances masters hesitate to accept orders on account of the low prices which obtain. The demand for bar-iron is not at all brisk, while no change can be noted in pig-iron. The arrivals of iron ore have been fairly large. Prices have not materially changed. The Tin-Plate Trade is moderately active. The enquiry is about up to the average. Prices are rather easier.

There has been a good demand for steam coal during the past week, but shipments have not been quite so large. The house qualities sell fairly well considering the time of year. The foreign demand for coal is fairly good. Not the slightest change can be noted as having taken place in prices. The crisis in the coal trade has come, but so far as can be at present seen the men are disposed to give way. The associated masters met, and decided to enforce the 10 per cent. reduction, and a delegate meeting of men at Merthyr, admitting the "situation," decided by a large majority to concede it. Sections of the men, however, met, and the house coal men especially—meeting at Llanfawd—decided upon not accepting the reduction. The Rhondda Valley men had a large meeting, and now seem very dissatisfied in the matter. The steam coal men asked the masters to allow them to continue working on the day to day system till the basis of the agreement of the reduction had been agreed on. They contended that since 1875 indirect reductions in various items of labour had taken place. The masters replied that the reduction of 10 per cent. must take place on the present earnings, and that contracts must be monthly. The house coal men asked the masters to allow them to return to the old system of working, but received the same reply as that noted above. At the Rhondda Valley meeting held the men protested against the Dinas verdict, and thought there ought to be another enquiry. It was resolved that the Home Secretary should be communicated with on the matter, especially as the colliery authorities were showing apathy in the explorations. Workmen were requested not to work in the pit except at the work of bringing out the bodies. The men also resolved on the broad principle of establishing a miners' Union for the district. The men at Blaenavon and Tredegar have accepted the reduction without any contention. Patent fuel is rather more active.

The Swansea Wagon Company have won the first prize of 50z., offered at the Royal Show, for the best meat van for railway service. The event has caused considerable satisfaction in the works of the company.

The Tredegar Iron and Coal Company (Limited) sixth annual report shows a profit of 54,352L, which includes 19,246L brought forward, and 973L for renewals of leases of house property. After paying the interest on loans and debentures the available balance was 37,286L, and the directors recommend a dividend of 2½ per cent., leaving 20,261L to be carried to the current account. It is a matter for congratulation that this company, among so many of its neighbours engaged in a similar trade, is able to pay the dividend referred to, and also show such a favourable balance-sheet as accompanies the report.

The whole of the New Place Colliery plant and machinery have been sold by auction, Messrs. Stephenson and Alexander, of Cardiff, being the auctioneers. Nearly all the lots were purchased by local colliery owners.

An impetus has been given to Bessemer steel trade since the appointment of Mr. D. Jarrett to the management of the forges and mills of the Rhymney works, the department under his control evincing the utmost activity, and the mills wearing an improved aspect, which we take as a decided indication of a better state of trade. An extraordinary make of rails was produced last week, when the large quantity of 1600 tons of completely finished steel rails were turned out. This is the largest quantity ever made during a week's time at these works.

ECONOMY IN TIN MINING.—The facts brought forward at the Wheal Peevor meeting, on Tuesday, should suffice to dispel the illusion of those who entertained the fear that the days of tin mining prosperity in Cornwall were gone for ever. Captain Thomas Pryor has proved that by energy, judgment, and economy he can raise tin in Cornwall at 26L 6s. per ton—a price which will enable Cornwall to compete with any tin-producing district in the world; and he has shown, moreover, that he can do this without unduly lowering the wages of the working miners, 2995L out of a total expenditure in the four months of 4928L having been paid as labour cost. The labour cost represented 16L upon every ton raised, and the adventurers' profit on the 16 weeks' working exceeded 1700L, so that a dividend of 10s. per share was declared, and 700L carried forward. The dividend is at the rate of almost exactly 20 per cent. per annum upon the capital, and is over 16 per cent. per annum on the present price of shares, results which afford a conclusive proof that, although capitalists may be sufferers where companies are saddled with heavy amounts of imaginary capital in the shape of fully-paid shares appropriated by promoters and their friends, it is practicable, however, even with the present low prices of metal, to make mines return very handsome dividends upon the amounts which are actually necessary to develop them. As to the future, the purser and Chairman (Capt. Thomas Pryor) said that great credit was due to Capt. White for the manner in which he had managed the mine, having increased the dividends from 5s. to 10s. per share, and he had no doubt Capt. White would tell them that they could do the same in future. Capt. White said that increased dividends, of course, depended upon the price of tin, but the mine never looked better than at this moment, and an important discovery in West Peevor a week ago greatly enhanced the value of Wheal Peevor. The prospects of both Wheal Peevor and West

Peevor appear excellent, and it cannot be doubted that a few such successes would tend to revive Cornish mining generally.

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coals into and from the port and district of London by sea, railway, and canal during June, 1879:—

IMPORTS.

By sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Newcastle	134	114,507	London & North-Western	124,121 15
Seaham	35	17,706	Great Northern	69,432 0
Sunderland	77	85,331	Great Western	84,851 0
Middlesborough	3	728	Midland	142,888 0
Harlepool	62	23,605	Great Eastern	43,749 3
Scotch	7	2,562	South-Western	5,135 8
Wales	8	4,225	South-Eastern	1,697 8
Yorkshire	20	4,347	Grand Junction Canal	249 10
Small coal	7	3,036		
Cinders	6	440		
Foreign	1	147		
Total	358	226,934	Total	472,032 4
Imports—June, 1878	320	189,435	Imports during June, 1878.	356,040 12

Comparative Statement, 1878 and 1879.

By Sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Jan. 1 to June 30, 1879	2432	1,628,813	Jan. 1 to June 30, 1879	3,262,652 9
Jan. 1 to June 30, 1878	2451	1,508,825	Jan. 1 to June 30, 1878	2,682,636 14

Increase—1879 121,988 Increase—1879 580,015 16

Decrease—1878 19 Total increase in trade within the London district 604,999

EXPORTS.

Railway-borne coal passing in transitu through district	Tons	77,975
Sea-borne coal exported to British possessions, or to foreign parts, or to the coast	Tons	41,413
Ditto, sent beyond limits by railway	Tons	7,237
Ditto, by canal and inland navigation	Tons	2,047 = 50,697
Railway-borne coal exported to British possessions, or to foreign parts, or to the coast	Tons	35,595
Ditto, by canal and inland navigation	Tons	118 = 36,713
Sea-borne coal brought into port and exported in same ships	Tons	495
Total quantity of coal conveyed beyond limits of coal duty district	Tons	165,880
..... during June, 1879	Tons	159,423
Comparative Statement, 1878 and 1879.		
Total distribution of coal from Jan. 1 to June 30, 1879	Tons	1,151,600
Billiton, Jan. 1 to June 30, 1878	Tons	1,064,716
Increase in the present year	Tons	97,004
General Statement, 1878-1879.		
Increase in coals imported by railway and canal	Tons	580,015
Increase in coals imported by sea	Tons	121,988 = 702,003
Less increase in coals exported	Tons	97,004
Total increase in trade within the London district	Tons	604,999

THE TIN TRADE.

Notwithstanding a satisfactory demand for consumption, as is shown by this month's delivery, our Tin Market has presented anything but a cheerful aspect. Its present state must be chiefly disappointing to those holders who have based their operations upon a gradual decrease of supply. The contrary being the case, and with large stocks held everywhere, some disposition to sell out has of late been manifested, and the market closed very dull in consequence at about 1 fl. decline. There was a good demand for Banca at the beginning of the month, and 39½ fl. was paid in several instances. With more offering the price has since declined to 38½ fl. our closing quotation. Contracts for delivery ex-July sale changed hands from 40 fl. to 39½ fl. Billiton has been in moderate request from 39½ fl. to 39 fl. During the last few days, with some pressure to sell, the price has given way to 38½ fl., and we close with sellers over there. According to an official statement, the production of Billiton for 1878 9, from May 1, 1878, until the end of April, 1879, amounts to 93,496 peculs, against 61,794 peculs in 1877-78, 59,532 peculs in 1876-77, 62,000 peculs in 1875-76, 63,000 peculs in 1874-75. We are specially requested to state that the enormous increase for 1878-79 must be attributed to exceptional causes—a large stock of unmelted ore having accumulated during previous years, and from which the year now closed has reaped the benefit. No complaints about drought have been raised during the past season, and there has also been a total absence of other unfavourable circumstances, which usually affect mining operations: 13,000 peculs Billiton offered in public sale, at Batavia, on the 9th inst., fetched the average price of 43½ fl. costing to sell here about 39½ fl. by steamer: 13,000 peculs will be offered for sale on Monday, Aug. 11. The position of Banca tin in Holland on June 30, according to the official returns of the Dutch Trading Company, was:—

	1879.	1878.	1877.
Import in June	Slabs 17,058	7,602	19,487
Total six months	84,326	60,724	72,470
Deliveries in June	15,207	10,980	15,008
Total six months	66,539	59,675	68,897
Stock second hand	49,719	37,000	30,932
Unsold stock	40,493	19,613	26,512
Total stock	90,213	56,613	57,444
Afloat	Peculs 6,500	8,400	7,125

Statement of Billiton:—			
Import in June	Slabs 13,800	2,000	15,300
Total six months	57,796	55,245	54,145
Deliveries in June	11,108	4,600	6,550
Total six months	47,795	42,634	39,372
Stock	63,849	51,121	45,392
Afloat	Peculs 21,000	18,000	13,000
Quotation at Banca	39 fl.	39½ fl.	41 fl.
June 30, 1878	38½ fl.	37½ fl.	41½ fl.

These combined returns of Banca and Billiton for 1879, compared with those for 1878, exhibit—an increase of the import for June of 664 tons; an increase of the import for the six months of 1130 tons; an increase of the deliveries for June of 335 tons; an increase of the deliveries for the six months of 374 tons; an increase of the stock second hand of 789 tons; an increase of the unsold stock of 632 tons; an increase of the total stock of 1442 tons; a decline in the quotation of Banca of 16s. per ton. The Government Returns for April are:—

	April.	Four months.	
1879.	1878.	1877.	
Germany	Tons 264	522	318
England	9	47	139
Belgium	158	153	137
France	42	35	123
Hamburg	48	50	30
United States	1	78	33
Total	520	848	683
Rotterdam, June 30.			

EBELING AND HAVELAAR.

money, and tradesmen's discounts have often been allowed to the manager; and, as mining companies sometimes take long credit, discounts are really paid at the expense of the shareholder. The only course open to stamp out such evils is to receive contracts from the various local merchants, and to pay cash for all goods. This system has been introduced at some mines, and has been found to answer favourably for the shareholders.

Upon the subject of investment and speculation, Mr. Gabbott observes that there is, to some extent, a prejudicial feeling abroad respecting markets, and it is foolishly pandered to by disappointed or interested parties. The Share Market is undoubtedly one of the most valuable institutions in the land; it is not established for speculative purposes but to meet the wants of investors. But speculation, in a greater or less degree, always clings to investment, whatever branch of commerce or industry we consider. As mining necessarily involves risk, it is always safer to minimise it by investing in several mines of approved character at the same time. No matter how promising a mine is, or how well introduced or managed, it is unwise to limit investment to any particular mine. There is always risk in mining, and it is unavoidable; but the chances of large profits run high. A good interest in one successful mine is a fortune, but such opportunities are not of an every-day occurrence; this, then, is the chance that the investor is running, he may or may not be successful, and, as it is impossible to foretell these things, it is the better plan to make the chance as wide as possible, by having several instead of one opportunity of succeeding. A capitalist may invest in four different mines, and one successful one, should three prove to be a dead loss, would recoup him, and leave a handsome profit as well. Mines on the original capital frequently pay as much as 50 per cent.; when such large profits are made the market value of the shares is consequently increased.

Equally clear and explicit details are given with regard to various other matters upon which the investor or speculator is likely to require information, Mr. Gabbott having evidently taken the utmost care to make his book useful and reliable; indeed, the work may be regarded as worthy of general study, as it will supply that knowledge so much required for preventing the failures so commonly complained of by the outside public who deal in mine shares.

METHODS OF WORKING THE DADE COAL MINES.*

The mines are situated in Dade county, Georgia, 22 miles southwest of Chattanooga, Tennessee. The seam, called the Dade vein, or brown seam, has a general dip of 5° to the north-west, and an average thickness of 3 ft. 10 in.; it contains two thin partings of oily shale. On the whole, the seam is quite regular, but in places it varies rapidly in thickness. The roof of the seam is tolerably good, formed of grey slate about 50 ft. thick. Below the seam is a thin band of hard black slate, from 1 in. to 6 in. thick; under this is a bed of hard, white, close-grained sandstone, about 30 ft. thick. The irregularities in the seams, called "squeerns," are due to this sandstone forming bosses and hollows, whilst the roof remains unchanged; over the bosses the coal may dwindle to 6 in., whilst in the hollows it sometimes amounts to 9 ft. These irregularities necessitate various modifications in the ordinary methods of working.†

As soon as a squeern is struck in an advancing entry, work is suspended until the width of the squeern is known. To ascertain direction, drifts are turned off at right angles to the entry, whilst drifts are at the same time turned off from entries parallel with that in which the squeern was first struck. If the squeern is narrow, work is resumed in the latter, and the coal worked; if wide, the entries on either side are continued until they can be connected by a cross-cut, and a new entry is started in the direction of the suspended one. In this manner the necessity of driving through many squeerns is avoided, and yet all the coal of value is taken out without any irregularity in the workings.

The seam was formerly worked entirely by room and pillar. It is now worked by long work, in withdrawing; but this method cannot safely be adopted in advancing, except by employing a very large amount of timber for cribbing.

The roof often scaled off in the room, and this sometimes reduced a miner's output by from 4 to 6 cars of coal per week, as the system there is for the miner to keep his roadway clear, without additional pay, except in the case of exceptionally heavy falls. Water accumulated in the rooms, but this is easily led off from the working faces of the long work. By the latter system a man can get from 25 to 50 more bushels of coal per day than by room and pillar. The loss of coal in working is reduced from 30 per cent. to about 10 per cent. Under the old system the rooms were turned off at right angles from the entries. In 12 ft. they were driven 7 ft. wide, in order to provide for the maintenance of the entry by the entry pillars thus formed. They were then widened out to 15 ft., and carried on in that width to their proper distance—say, 150 ft. Then the pillar was cut in two, and withdrawn towards the entry, within 36 ft. of the latter. After all the rooms of a section belonging to a side entry had been worked, the entry pillars were taken away, the work being done towards the main entry.

For the long wall work, blocks 25, 50, 75, and 100 ft. wide are laid off, by driving headings from two parallel side entries towards each other. The block thus formed is cut in two by a drift started at right angles from the middle of the heading, and withdrawn towards each side entry, leaving a sufficient pillar to support the entry.

The methods and cost of timbering are described; the arrangements for ventilation briefly referred to; and the paper closes with a comparison of the advantages of the long work and room and pillar systems of working.

—By T. R. EVANS: *Metalurgical Review*, New York.

* From JAMES FORREST'S "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institution of Civil Engineers.

† Similar irregularities are not unfrequent in English coal seams; but they generally occur with a sandstone roof, which comes down and cuts out the coal. These are often called "rock faults" or "wants;" in the Forest of Dean they are called "horses" and "lows;" in Northumberland "nips."

AMERICAN LOCOMOTIVES FOR AUSTRALIA.—Advices from New York state that the Baldwin Locomotive Works, Philadelphia, are engaged night and day on a large order for locomotives for Australia

CASSELL'S PUBLICATIONS.—"Science for All" for July contains articles by Dr. Mann; Why the Rain Falls, by Prof. T. G. Bonney; The Story of a Volcano as Told in History; On the Protection of Iron from Rust; How the Air was Discovered; and What is Work. "The Great Industries of Great Britain" contains continuations of the articles—Hemp, Flax, and Jute; Health and Disease in Industrial Occupations; Wool and Worsted; Shipbuilding; Cotton; Iron and Steel; and Pottery and Porcelain. No. 31 of "Knight's Dictionary of Mechanics" extends from "Gearing Chain" to the beginning of "Gold."

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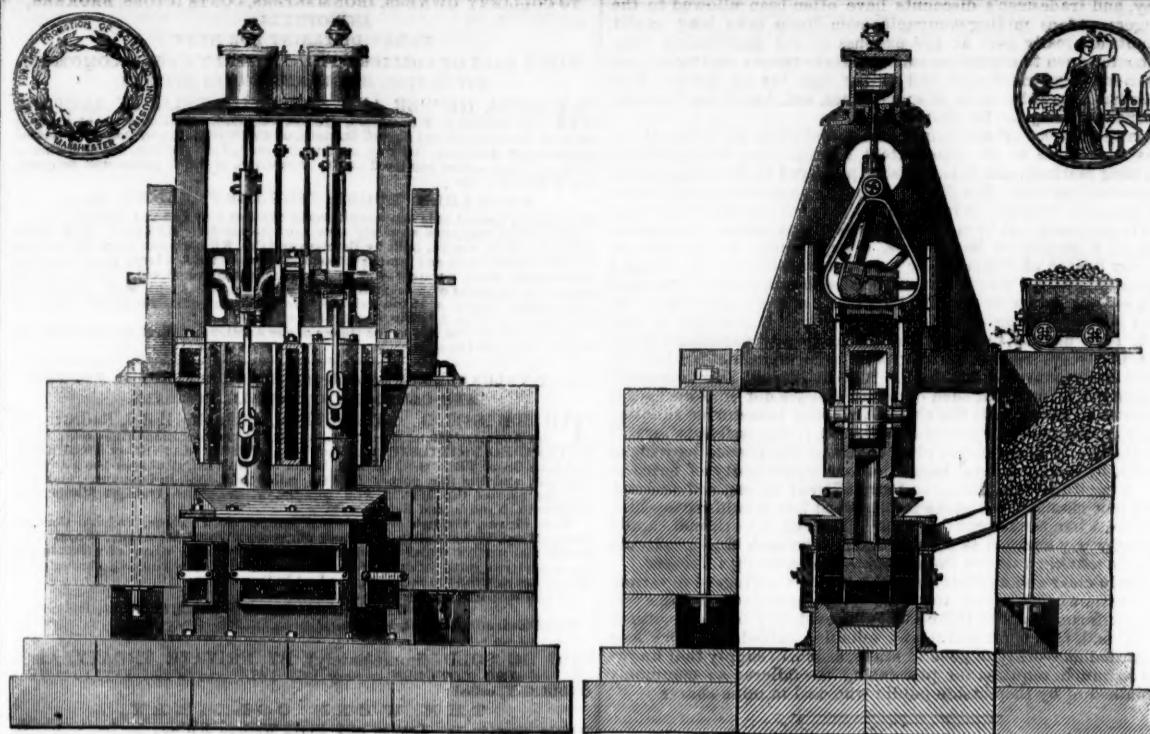
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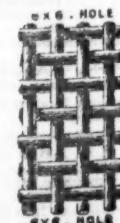
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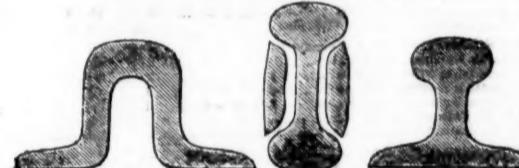
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Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3000 Bryn Alyn, *i, Denbigh	10 0 0	—	—	0 7 0	0 7 0	Jan. 1877
10000 Caron, *i, Cardigan*	2 0 0	—	2 2 1/2	0 4 6	0 3 0	Oct. 1878
10000 Carn Brea, c, Illogan*	55 7 8	—	26	24 25	308 0 0	1 0 0
10000 Cashwell, i, Cumberland*	2 10 0	—	—	1 9 6	0 2 0	Aug. 1878
400 Cook's Kitchen, c, Illogan*	16 14 9	—	1 1/2	1 1/2	11 17 0	0 1 6
2450 Devon Gt. Consols, c, Tavistock*	4 0 0	—	2 1/2	1 1/2	116 12 0	0 5 0
4295 Dolcoath, c, Camborne	10 14 10	—	26	24 25	112 6 2	0 5 0
5000 East Black Craig, *i, Scotland	8 0 0	—	—	0 10 0	0 10 0	Feb. 1877
300 East Darren, *i, Cardiganshire	32 0 0	—	—	285 10 0	0 1 0	Aug. 1878
6400 East Pool, c, Illogan	8 0 0	—	9	9 9 1/2	16 0 2	0 4 0
40000 Glasgow Carr, c, (20,000 £1 p.) 10,000 15 p.)	34	—	34 1/2	0 13 10	0 0 6	Aug. 1878
8500 Great Marlins Cons., i, Flint	2 10 0	—	2 2 1/2	0 8 0	0 5 0	Aug. 1878
15000 Great Laxey, *i, Isle of Man*	4 0 0	—	16	15 1/2	24 15 0	0 5 0
615 Gt. Retailack, c, Perranzabuloe	5 18 8	—	—	0 1 0	0 1 6	May 1878
6400 Green Hurth, *i, Durham	8 0 0	—	4 1/2	4 1/2	2 2 0	0 3 0
20000 Grogwinion, *i, Cardigan*	2 0 0	—	3	2 1/2	0 14 10	0 1 0
9880 Guinislake (Clitter), c	5 5 0	—	1 1/2	1 1/2	0 13 9	0 1 0
2800 Isle of Man, *i, Isle of Man*	25 0 0	—	—	82 8 0	0 10 0	Feb. 1878
36000 Leadhills, *i, Lanarkshire	6 0 0	—	2	1 1/2	0 15 0	0 3 0
400 Lisburne, *i, Cardiganshire	18 18 0	—	35	30 35	597 10 0	0 1 0
9000 Marke Valley, c, Linkinhorne	5 2 6	—	3 1/2	3 1/2	7 18 0	0 2 0
10000 Mellanace Copper, Hayle*	3 0 0	—	4 1/2	4 1/2	0 8 0	0 3 0
9000 Minera Mining Co., i, Wrexham	8 0 0	—	10 1/2	9 1/2	68 1 8 0	0 2 0
20000 Mining Co. of Ireland, s, i, *i*	7 0 0	—	—	25 17 6	0 2 6	Jan. 1878
1024 North Busy, c, Chacewater	1 14 0	—	—	1 0 0	0 5 0	Oct. 1878
1029 North Hendre, i, Wales	2 10 0	—	6 1/2	6 1/2	2 17 6	0 5 0
10000 Panty Mwyn, *i, Mold (8794 lbs.)	2 0 0	—	3	2 1/2	0 3 0	Aug. 1878
10000 Penallt, c, St. Agnes	3 17 8	—	1 1/2	1 1/2	3 18 6	0 2 0
6000 Pannant, i, Mer., North Wales*	6 0 0	—	4 1/2	4 1/2	0 10 0	0 5 0
45795 Penstruthl, *i, c, Gwennap	2 0 0	—	2	2 1/2	0 2 8	0 0 8
10000 Prince Patrick, *i, Holywell *i	1 0 0	—	1	1	0 14 0	0 1 2
12000 Ditto, pref. (5000 issued)	0 10 0	—	—	0 1 0	0 1 0	Mar. 1879
10000 Red Rock, *i, Cardigan	3 0 0	—	2 1/2	2 1/2	0 4 0	0 2 0
10000 Roman Gravels, *i, Salop	7 10 0	—	8 1/2	8 1/2	8 0 0	0 5 0
612 South Cardaron, c, St. Cleer	1 8 0	—	55	48 50	744 10 0	0 1 0
6128 South Condurrow, c, Camborne	6 8 6	—	12	11 1/2	5 7 0	0 10 0
12800 St. Harmon, *i, Montgomery	3 0 0	—	2	1 2	0 12 0	0 3 0
4500 South Wh. Min., *i, Illogan	7 12 4	—	8 1/2	8 1/2	38 4 6	0 12 0
12000 Tankerville, *i, Salop	6 0 0	—	3	2 1/2	4 17 0	0 5 0
6000 Tincroft, c, Pool, Illogan*	11 10 0	—	9	8 9	50 8 0	0 5 0
15000 Van, *i, Llanidloes	4 5 0	—	17 1/2	16 17	24 0 6	0 5 0
3000 W. Chiverton, *i, Perranzabuloe	17 5 0	—	3	2 3/2	55 10 0	0 10 0
1788 West Poldice, St. Day*	1 0 0	—	—	1 19 0	0 4 0	July 1878
612 West Tolgus, c, Redruth	98 10 0	—	22 1/2	19 21	33 0 0	1 0 0
2048 West Wheal Frances, t, Illogan	29 6 3	—	5	4 1/2	32 12 0	0 8 0
600 West Wh. Seton, c, Camborne	49 0 0	—	13	11 1/2	448 0 0	0 15 0
12000 West Wye Valley, *i, Montgomery	3 0 0	—	1 1/2	1 1/2	0 12 0	0 3 0
1024 Wh. Eliza Consol, St. Austell	18 0 0	—	9	8 9	19 10 0	1 10 0
2048 Wheat Jane, *i, Kex	6 18 10	—	13 1/2	13 1/2	8 5 0	0 5 0
4998 Wheat Kitty, *i, St. Agnes	6 4 6	—	3 1/2	3 1/2	11 19 0	0 2 6
3000 Wheat Pevor, t, Redruth	7 11 0	—	9 1/2	9 1/2	12 0 0	0 10 0
6000 Wheat Prussia, t, Redruth	0 5 0	—	—	0 4 0	0 1 0	July 1877
10000 Wye Valley, *i, Montgomery	3 0 0	—	1 1/2	1 1/2	0 10 0	0 4 0

FOREIGN DIVIDEND MINES.

Shares.	Paid.	Last Pr.	Clos. Pr.	Last Call.	Paid.	Last wk.	Clos. Pr.	Last Call.
55000 Alamillos, *i, Spain*	2 0 0	—	1 1/2	1 1/2	1 19 9	0 0 6	Ost. 1878	
30000 Almada and Trito Consol., *i*	1 0 0	—	3 1/2	3 1/2	0 4 2	0 1 0	May 1876	
39000 Australian, c, South Australia	7 1 6	—	1 1/2	1 1/2	1 1 1/2	0 2 0	July 1878	
10000 Battle Mountain, *c, (5240 part pd.)	0 0 0	—	—	0 10 0	0 10 0	Nov. 1872		
15000 Birdseye Creek, *c, California	4 0 0	—	3 1/2	3 1/2	0 14 0	0 2 6	June 1874	
30000 Copper Mining, *i, Bo. Africa	7 0 0	—	28 1/2	27 1/2	28 15 0	0 12 0	June 1878	
24433 Cedar Creek, *c, California	5 0 0	—	—	0 5 0	0 2 6	June 1878		
85000 Cesena Sul. Co., Romagna, Italy*	10 0 0	—	—	0 18 0	0 2 0	Dec. 1878		
15000 Chicago, *c, Utah	10 0 0	—	35	34 1/2	0 8 0	0 4 0	Nov. 1876	
65000 Colorado United, *i, Colorado*	5 0 0	—	1 1/2	1 1/2	0 15 0	0 4 0	Jan. 1878	
10000 Copiapo, c, Chile* (250 shares)	16 15 0	—	—	7 11 5	0 3 0	May 1877		
10000 Don Pedro North del Rey*	1 0 0	—	1	1	2 8 0	0 2 0	Mar. 1872	
23590 Eberhard & Aurora, *i, Nevada*	10 0 0	—	3 1/2	3 1/2	1 8 0	0 3 0	Dec. 1877	
70000 English & Australian, *i, B. Aust.	3 10 0	—	1 1/2	1 1/2	2 18 8	0 1 0	Mar. 1878	
50000 Flagstaff, *i, Utah	10 0 0	—	3 1/2	3 1/2	0 2 0	0 5 0	July 1878	
25000 Fortuna, *i, Spain*	3 0 0	—	4	3 1/2	7 4 11	0 1 9	Apr. 1879	
55000 Frontino & Bolivia, *i, New Gran*	3 0 0	—	2 1/2	2 1/2	0 2 6	0 1 0	Feb. 1879	
50000 Gold Run, hyd.	1 0 0	—	—	0 2 4	0 4 0	Oct. 1872		
10000 Hercules and Roe, c, Colo. fy. pd.	2 0 0	—	—	2 8 0	0 2 8	Jan. 1878		
65000 Kapunda Mining Co. Australia	1 3 0	—	—	0 2 4	0 6 0	June 1878		
20000 Last Chance, *i, Utah	8 0 0	—	—	0 14 0	0 2 0	July 1878		
15000 Linares, *i, Spain*	3 0 0	—	4	3 1/2	17 12 10	0 2 8	Apr. 1879	
50000 London and California, *i*	3 0 0	—	3 1/2	3 1/2	0 1 0	0 1 0	July 1878	
50000 Mamm. Copperopolis of Utah, *i	10 0 0	—	—	0 8 0	0 8 0	Dec. 1875		
50000 Mountain Chief, *i, Utah	10 0 0	—	—	0 8 0	0 8 0	Dec. 1875		
20000 Postgibland, *i, France	20 0 0	—	20	18 20	27 6 9	0 7 6	June 1879	
100000 Port Phillip, g, Clunes* (22 sh.)	1 0 0	—	55	36 1/2	1 12 0	0 1 0	Mar. 1878	
54000 Richmond Consols, *i, Nevada*	8 0 0	—	8 1/2	8 1/2	7 1 8	0 1 0	Feb. 1879	
40000 Santa Barbara, *i, Brazil	10 0 0	—	2 1/2	2 1/2	9 7 8	0 1 0	May 1879	
120000 Scottish Australian Mining Co.*	1 0 0	—	2	1 1/2	15 per cent.	Nov. 1878		